MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

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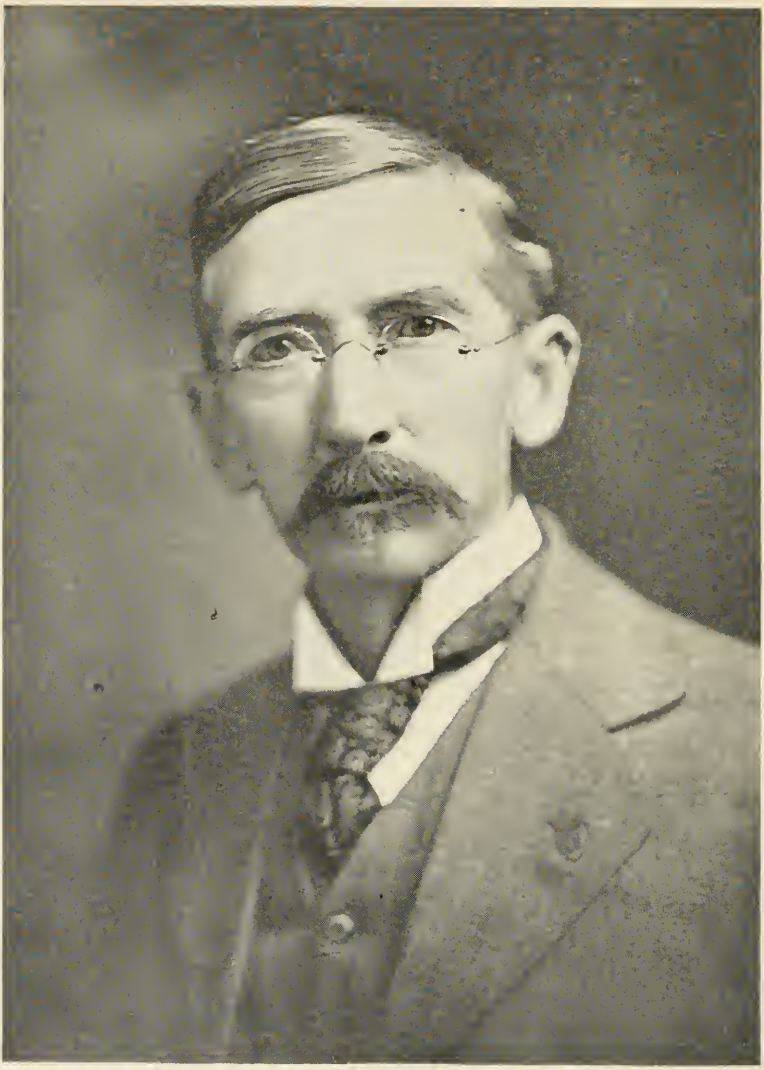

Sincerely Yours,
Cyrus Thompson

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

SIXTY-SIXTH ANNUAL MEETING

HELD AT

PINEHURST, NORTH CAROLINA

APRIL 15, 16, 17, 1919

PRESIDENT, DR. CRYUS THOMPSON, JACKSONVILLE, N. C.
SECRETARY-TREASURER, DR. B. K. HAYES, OXFORD, N. C.
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"It is understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the Transactions of the Society."—*Extract from By-Laws, chapter* 10, *section* 8.

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EARLY HISTORY OF THE NORTH CAROLINA MEDICAL SOCIETY FROM ORGANIZATION TO 1804.

Date	Place	President	Vice-President	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 24, 1799, or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis, John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton, James Webb, Jas. John Pasteur, Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchel, Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenburg	James Webb, John Sibley
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1919

*Missing Data Not to be Found in Record

	Date	Place	Members in Attendance	President	Vice Presidents	Secretary	Treasurer	Members on Roll*	Honorary Members*	Honorary Fellows*
	1849	Raleigh	25	F. J. Hill		W. H. McKee		25		
1	1850	Raleigh	21	E. Strudwick	F. J. Haywood, C. E. Johnson, J. W. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	
2	1851	Raleigh	23	E. Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill	46	9	
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	
4	1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham			
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G.W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	
13	1866	Raleigh	20	J. J. Summerell		W. G. Thomas	C. W. Graham			
14	1867	Tarboro	41	W. G. Thomas	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell	C. W. Graham	288	11	
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones			
16	1869	Salisbury	36	E. B. Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones			
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Lucky, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones			
18	1871	Raleigh	35	Hugh Kelly	D. N. Patterson, R. C. Pearson, J. B. Seaby, G. L. Kirby.	Thomas F. Wood	J. W. Jones			
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones			

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1919—CONTINUED

*MISSING DATA NOT TO BE FOUND IN RECORD

	Date	Place	Members in Attendance	President	Vice Presidents	Secretary	Treasurer	Members on Roll*	Honorary Members*	Honorary Fellows*
20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Charles Duffy, T. P. Jerman.	James McKee	H. T. Bahnson	------	------	------
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson	------	------	------
22	1875	Wilson	60	J. W. Jones	Walter Debnam, J. A. Gibson, William Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	------
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	------
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	------
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Smith.	L. J. Picot	A. G. Carr	194	6	------
26	1879	Greensboro	109	Chas. Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	------
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	------
28	1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	------
29	1882	Concord	65	Thos. F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	------
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	------
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	------
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	------
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.	438	7	------
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	------
35	1888	Fayetteville	133	T. D. Haigh	W. T. Ennett, J. A. Dunn, T. E. Anderson	J. M. Baker	C. M. Poole	306	6	------
36	1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long	J. M. Baker	C. M. Poole	410	6	------
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. D. Booth	J. M. Hays	C. M. Poole	414	6	------
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly	J. M. Hays	C. M. Poole	422	6	------
39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Poole	431	6	------
40	1893	Raleigh	221	J. W. McNeill	W. C. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3

41	1894	Greensboro	166	W. H. H. Cobb	J. A. Hodge, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	454	5	3
42	1895	Goldsboro	------	J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3
43	1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45	1898	Charlotte	------	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	Geo. W. Pressley	G. T. Sikes	489	6	16
47	1900	Tarboro	115	George W. Long	C. M. Poole, James M. Parrott, T. B. Williams, W. D. Hilliard.	Geo. W. Pressley	G. T. Sikes	482	6	21
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	Geo. W. Pressley	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	Geo. W. Pressley	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1,033	8	17
52	1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison	J. Howell Way	G. T. Sikes	1,175	8	17
53	1906	Charlotte	406	Ed. C. Register	L. B. McBrayer, W. H. Cobb, W. O. Spencer.	J. Howell Way	G. T. Sikes	1,234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLoughlin, W. F. Hargrave.	David A. Stanton	H. McK. Tucker	888	8	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixon	David A. Stanton	H. McK. Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Poole, D. A. Garrison, D. O. Dees	David A. Stanton	H. McK. Tucker	1,067	7	25
57	1910	Wrightsville Beach.	276	J. A. Burroughs* / E. J. Wood	E. J. Wood, John Q. Myers, L. D. Wharton	David A. Stanton	H. D. Walker	1,080	8	35
58	1911	Charlotte	412	C. M. VanPoole	J. V. McGougan, W. E. Warren, L. N. Glenn	David A. Stanton	H. D. Walker	880	8	45
59	1912	Henders'nville	296	A. A. Kent	J. P. Munroe, W. P. Horton, J. G. Murphy	David A. Stanton	H. D. Walker	950	8	44
60	1913	Morehead City	232	J. P. Munroe	F. R. Harris, E. S. Bulluck, L. B. Morse	John A. Ferrell	H. D. Walker	1,128	8	47
61	1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, D. E. Sevier	John A. Ferrell	H. D. Walker	1,228	8	47
62	1915	Greensboro	443	L. B. McBrayer	J. J. Phillips, C. W. Moseley, S. M. Crowell	John A. Ferrell	H. D. Walker	1,221	9	68
63	1916	Durham	406	M. H. Fletcher	J. L. Nicholson, L. N. Glenn, W. H. Hardison	Benj. K. Hays	W. M. Jones	1,228	10	79
64	1917	Asheville	280	Charles O'H. Laughinghouse.	D. J. Hill, J. L. Spruill, J. H. Shuford	Benj. K. Hays	W. M. Jones	1,271	11	81
65	1918	Pinehurst	291	I. W. Faison	Wm. deB. MacNider, Jos. B. Greene, Ben. F. Royal.	Benj. K. Hays	W. M. Jones	------	------	------
66	1919	Pinehurst	335	Cyrus Thompson	J. W. Halford, T. W. Davis, A. McN. Blair	Benj. K. Hays	B. K. Hays	1,306	11	117

*Died during term of office.

PAST MEMBERS BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

James H. Dickson, President, Wilmington 1859–1866
Charles E. Johnson, Raleigh 1859–1866
Caleb Winslow, Hertford 1859–1866
Otis F. Manson, Townsville 1859–1866
William H. McKee, Raleigh 1859–1866
Christopher Happoldt, Morganton 1859–1866
J. Graham Tull, New Bern 1859–1866
Samuel T. Iredell, Secretary 1859–1866

N. J. Pittman, President, Tarboro 1866–1872
E. Burke Haywood, Raleigh 1866–1872
R. H. Winborne, Edenton 1866–1872
S. S. Satchwell, Rocky Point 1866–1872
J. J. Summerell, Salisbury 1866–1872
R. B. Haywood, Raleigh 1866–1872
M. Whitehead, Salisbury 1866–1868
J. F. Shaffner, Salem 1866–1872
William Little, Secretary 1866–1872

Charles J. O'Hagan, President, Greenville 1872–1878
W. A. B. Norcom, Edenton 1872–1878
C. Tate, Murphy 1872–1878
George A. Foote, Warrenton 1872–1878
J. W. Jones, Tarboro 1872–1878
R. L. Payne, Lexington 1872–1878
Charles Duffy, Jr., Secretary, New Bern 1872–1878

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T. D. Haigh, Fayetteville 1878–1884
George L. Kirby, Goldsboro 1878–1884
Thomas F. Wood, Wilmington 1878–1884
Joseph Graham, Charlotte 1878–1884
H. T. Bahnson, Secretary, Salem 1878–1884
R. H. Lewis, Raleigh 1880–1884

William R. Wood, President, Scotland Neck 1884–1890
A. W. Knox, Raleigh 1884–1890
Francis Duffy, New Bern 1884–1890
P. L. Murphy, Morganton 1884–1890
Willis Alston, Littleton 1884–1890
W. H. J. Bellamy, Secretary, Wilmington 1884–1890
J. A. Reagan, Weaverville 1884–1890

R. L. Payne, Norfolk, Va. 1890–1892
George W. Purefoy, Asheville 1890–1892
George G. Thomas, Wilmington 1890–1894
Robert S. Young, Concord 1890–1894
George W. Long, Graham 1890–1894

W. H. Whitehead, President, Rocky Mount 1890–1896
L. J. Picot, Secretary, Littleton 1890–1896

Julian M. Baker, President, Tarboro 1892–1898
H. B. Weaver, Asheville 1892–1898
T. S. Burbank, Wilmington 1894–1898
J. M. Hayes, Greensboro 1894–1897
D. T. Taylor, President, Washington 1896–1902
R. H. Whitehead, Chapel Hill 1896–1897
Thomas E. Anderson, Secretary, Statesville 1896–1900
Kemp P. Battle, Jr., Raleigh 1897–1902
J. Howell Way, Secretary, Waynesville 1897–1902
W. H. H. Cobb, Goldsboro 1898–1902
Albert Anderson, Raleigh 1898–1902

E. C. Register, President, Charlotte 1898–1902
Thomas S. McMullan, Hertford 1900–1902
John C. Walton, Richmond, Va. 1900–1902
George W. Pressley, Secretary, Charlotte 1902–1906

A. A. Kent, President, Lenoir 1902–1908
G. T. Sikes, Secretary, Grissom 1906–1908
Charles O'Hagan Laughinghouse, President, Greenville 1902–1908
M. H. Fletcher, President, Asheville 1902–1908
James M. Parrott, Kinston 1902–1908
J. T. J. Battle, Greensboro 1902–1908
Frank H. Russell, Wilmington 1902–1908

John Bynum, President, Winston-Salem 1908–1914
John C. Rodman, Washington 1908–1914
Benjamin K. Hays, Secretary 1908–1914
L. B. McBrayer, Asheville 1908–1914
William W. McKenzie, Salisbury 1908–1914
Henry H. Dodson, Greensboro 1908–1914
J. L. Nicholson, Richlands 1908–1914

BOARD OF MEDICAL EXAMINERS, 1914-1920

J. Q. Myers, President, Charlotte, Pharmacology, Materia Medica, and Therapeutics.
J. F. Highsmith, Fayetteville, Anatomy, Histology, and Embryology.
H. A. Royster, Secretary, Raleigh, Surgery.
E. G. Moore, Elm City, Obstetrics, Gynecology, and Pediatrics.
J. G. Blount, Washington, Practice of Medicine.
I. M. Taylor, Morganton, Chemistry and Hygiene.
M. L. Stevens, Asheville, Physiology, Pathology, Bacteriology.
*Charles T. Harper, Wilmington.

*Died 1915.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH FROM ORGANIZATION IN 1877 TO 1919

Name	Address	Appointed by	Term
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
M. Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
J. M. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1893
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hilliard, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1897
H. T. Bahnson, M.D., President	Winston-Salem	State Society	1887 to 1893
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1888
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1887 to 1889
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1889 to 1891
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1893
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1892
J. M. Baker, M.D.	Tarboro	State Society	1889 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1892
Thomas F. Wood, M.D., Secretary*	Wilmington	State Society	1891 to 1897
George G. Thomas, M.D., President	Wilmington	State Board of Health	1892 to 1897
S. Westray Battle, M.D.	Asheville	State Society	1891 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1892 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1893 to 1895
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1894 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1895 to 1897
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1895 to 1897
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1897 to 1899
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1901
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

ROSTER OF MEMBERS—Continued

Name	Address	Appointed by	Term
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M.D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1913
James A. Burroughs, M.D.*	Asheville	State Society	1907 to 1909
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1909 to 1915
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
R. H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1919
A. A. Kent, M.D.†	Lenoir	State Society	1913 to 1915
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1915 to 1919
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1915 to 1921
J. Howell Way, M.D., President	Waynesville	Gov. T. W. Bickett	1917 to 1923
E. C. Register, M.D.	Charlotte	Gov. T. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1917 to 1923
Cyrus Thompson, M.D.	Jacksonville	State Society	1919 to 1925
Fletcher R. Harris, M.D.	Henderson	State Society	1919 to 1925
R. H. Lewis, M.D.	Raleigh	Gov. T. W. Bickett	1919 to 1925
E. J. Tucker, D.D.S.	Roxboro	Gov. T. W. Bickett	1919 to 1925

*Died leaving unexpired term. †Resigned to become member of General Assembly.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1906-1919

Counties	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Alamance	15	7	17	15	14	12	11	11	13	9	10	12	10	15
Alexander *a*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Alleghany	-----	-----	-----	-----	-----	-----	-----	-----	-----	2	2	-----	-----	-----
Anson	3	1	3	1	1	1	6	8	7	-----	-----	-----	1	3
Ashe	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	11	15	8
Avery	-----	-----	-----	-----	-----	-----	-----	-----	8	7	9	9	7	6
Beaufort	10	15	15	11	11	16	15	14	14	14	14	10	11	10
Bertie	3	4	4	4	5	2	2	2	3	3	3	3	5	5
Bladen	4	4	3	3	3	4	4	5	7	7	6	9	8	9
Brunswick	4	4	-----	4	2	2	2	5	4	5	-----	-----	2	2
Buncombe	37	47	48	54	58	63	64	69	68	70	71	74	76	81
Burke	8	10	9	10	13	12	11	13	15	17	17	16	17	6
Cabarrus	13	13	17	16	18	21	21	19	22	23	25	20	22	19
Caldwell	8	10	12	12	13	12	10	12	12	11	7	9	13	12
Camden *b*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Carteret	9	9	10	7	7	6	7	6	7	7	9	7	4	7
Caswell	3	3	3	2	1	1	1	1	1	1	1	1	1	3
Catawba	8	10	9	12	12	-----	-----	-----	-----	15	13	18	-----	5
Chatham	-----	6	1	2	2	6	-----	14	15	12	11	11	11	7
Cherokee	3	-----	-----	9	6	7	9	8	7	10	9	11	10	6
Chowan	-----	-----	-----	-----	-----	7	5	8	9	7	4	3	-----	6
Clay *c*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Cleveland	12	14	14	13	13	14	15	15	16	13	13	16	16	17
Columbus	8	9	8	8	8	10	12	12	14	9	11	7	1	6
Craven	8	10	14	14	14	12	14	18	15	11	8	11	7	7
Cumberland	8	12	12	17	20	20	22	23	22	24	19	17	16	15
Currituck	6	6	3	3	6	4	4	4	6	7	6	6	1	5
Dare *d*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Davidson	11	12	12	12	13	13	15	13	17	13	9	20	20	19
Davie	3	6	6	6	6	5	6	-----	-----	-----	6	5	4	4
Duplin	5	8	8	10	10	9	8	9	7	4	7	10	9	9
Durham-Orange	16	15	18	24	26	28	31	32	38	40	41	44	35	33
Edgecombe	4	8	8	10	10	11	11	11	13	13	13	10	10	7
Forsyth	20	21	26	30	25	29	31	32	37	39	42	45	37	37
Franklin	8	10	10	9	11	11	11	10	10	12	11	10	11	11
Gaston	17	22	25	25	27	29	29	30	27	26	25	27	27	26
Gates	4	4	4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1
Graham	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Granville	7	8	11	12	12	8	13	12	14	11	16	16	14	14
Greene	4	5	5	6	6	6	5	5	5	5	6	5	2	5
Guilford	39	54	62	64	65	56	58	59	62	71	66	68	67	72
Halifax	9	10	10	7	6	2	2	11	11	7	15	8	1	7
Harnett	13	16	18	19	15	14	17	17	16	17	15	17	15	14
Haywood	7	10	11	15	13	10	11	13	15	11	11	11	9	9
Henderson-Polk	10	11	15	14	14	17	17	11	14	14	15	15	11	13
Hertford	8	8	9	8	6	2	-----	8	10	4	1	5	10	10
Hoke	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	10	11	10
Hyde	-----	-----	5	8	6	6	6	7	7	-----	-----	-----	1	2
Iredell-Alexander	19	18	18	18	17	12	9	9	14	16	9	20	11	11
Jackson	5	2	2	-----	-----	-----	-----	2	3	5	2	5	2	5
Johnston	9	11	15	13	15	19	18	18	19	21	19	22	16	24
Jones	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Lee	-----	-----	-----	-----	-----	-----	-----	7	8	7	8	8	6	8
Lenoir	11	12	13	9	12	6	8	9	12	14	15	16	15	17
Lincoln	7	8	8	10	10	10	11	12	13	14	11	9	11	15
Macon-Clay	3	3	4	5	-----	-----	-----	4	4	5	5	4	6	6
Madison	7	11	11	12	-----	-----	10	7	8	11	9	10	-----	11
Martin	6	9	9	13	13	13	12	13	14	14	15	17	12	11
McDowell	8	7	-----	8	4	5	6	6	7	7	7	8	7	6
Mecklenburg	31	37	54	51	57	44	50	63	69	71	74	63	49	97
Mitchell	-----	3	4	7	4	5	5	4	2	2	2	1	-----	4
Montgomery	5	6	8	7	9	7	7	8	6	10	9	9	8	6
Moore	17	2	14	10	11	21	21	13	16	15	18	10	15	16
Nash	-----	-----	-----	-----	-----	-----	1	-----	19	18	26	27	21	26
New Hanover	15	20	21	23	21	21	22	31	28	33	41	30	29	38
Northampton	7	9	9	8	11	9	1	12	12	11	10	14	11	13
Onslow	3	4	4	4	6	11	10	12	10	8	9	11	7	9
Orange *e*	1	1	1	1	1	1	1	8	-----	-----	-----	-----	-----	-----
Pamlico	3	3	4	5	4	4	4	5	5	5	5	5	4	4
Pasquotank-Camden-Dare	11	11	10	10	11	12	12	13	15	15	17	19	16	15
Pender	-----	-----	-----	-----	2	2	2	2	-----	-----	-----	-----	-----	1
Perquimans	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	4	3
Person	6	7	8	9	9	10	11	11	8	11	13	12	-----	12
Pitt	11	11	9	14	10	10	5	9	5	15	9	14	5	18
Polk *f*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES.—(Continued.)

Counties	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Randolph	6	6	9	9	10	8	9	7	12	14	11	13	11	12
Richmond	11	11	11	1	12	1	10	-----	10	13	13	14	11	13
Robeson	16	24	24	20	15	22	23	35	24	16	22	16	8	31
Rockingham	2	5	5	1	16	16	16	18	19	17	10	4	14	16
Rowan	19	27	25	23	24	26	24	23	26	22	25	23	22	24
Rutherford	15	16	17	22	23	24	18	19	20	19	21	14	17	18
Sampson	7	9	11	10	11	11	12	12	14	14	18	15	10	11
Scotland	7	8	11	10	11	9	9	11	12	12	12	13	10	9
Stanly	9	9	9	8	11	10	11	11	13	14	9	14	11	11
Stokes	11	5	10	11	9	10	11	7	12	13	12	10	5	5
Surry	10	13	15	15	15	13	14	19	21	19	18	23	24	27
Swain	6	6	6	8	-----	-----	-----	-----	-----	-----	-----	6	7	2
Transylvania	8	4	4	1	-----	5	5	6	7	6	7	5	-----	1
Tyrrell *g*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Union	9	11	14	14	14	15	16	17	16	16	12	13	15	14
Vance	6	6	8	9	12	11	11	11	10	11	13	10	4	5
Wake	39	42	44	49	53	56	54	41	53	57	62	70	56	81
Warren	-----	-----	2	-----	-----	4	5	5	5	8	7	7	6	3
Washington-Tyrrell	3	4	5	10	11	11	11	11	9	9	11	8	6	9
Watauga	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Wayne	10	10	13	10	-----	-----	16	19	13	7	17	19	18	27
Wilkes	6	7	8	8	11	11	6	9	8	7	6	9	8	10
Wilson	10	12	12	16	17	17	17	17	24	22	22	24	21	25
Yadkin	9	10	11	8	6	6	6	7	7	6	-----	-----	-----	10
Yancey	2	-----	4	3	-----	-----	-----	-----	-----	-----	-----	-----	-----	3
Totals	769	865	979	1012	997	996	1036	1133	1220	1221	1228	1271	1087	1306

a See Iredell-Alexander; *b* see Pasquotank-Camden-Dare; *c* see Macon-Clay; *d* see Pasquotank-Camden-Dare; *e* see Durham-Orange; *f* see Henderson-Polk; *g* see Washington-Tyrrell.

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Adams, M. R. ..... Statesville
Alexander, Annie L. ..... Charlotte
*Alston, B. P. ..... Epsom
Anderson, T. E. ..... Statesville
*Archey, Leon M. ..... Concord
Asbury, F. E. ..... Worthville
Attmore, G. S. ..... Stonewall
*Bahnson, H. T. ..... Winston-Salem
Baker, J. M. ..... Tarboro
*Barrier, P. A. ..... Mt. Pleasant
Battle, J. T. J. ..... Greensboro
Battle, K. P. ..... Raleigh
Battle, Samuel Westray ..... Asheville
Beall, W. P. ..... Greensboro
*Bellamy, W. J. H. ..... Wilmington
Boddie, N. P. ..... Durham
Bolton, M. ..... Rich Square
*Booth, S. D. ..... Oxford
*Bulluck, D. W. ..... Wilmington
Caldwell, D. G. ..... Concord
Clark, G. L. ..... Clarkton
*Croom, J. D. ..... Maxton
DeArman, J. McC. ..... Charlotte
Denny, W. W. ..... Pink Hill
Dillard, Richard, Jr. ..... Edenton
Dodson, H. H. ..... Greensboro
*Duffy, Chas. ..... New Bern
*Duffy, Francis ..... New Bern
Edwards, G. C. ..... Hookerton
Faison, I. W. ..... Charlotte
Faison, W. W. ..... Goldsboro
Fletcher, M. H. ..... Asheville
Fox, M. F. ..... Guilford College
Freeman, R. A. ..... Burlington
Galloway, W. C. ..... Wilmington
Gibbon, Robert L. ..... Charlotte
Goodwin, A. W. ..... Raleigh
*Graham, Joseph ..... Charlotte
Griffin, J. A. ..... Clayton
Hall, Wright ..... Wilmington
Hargrove, R. H. ..... Robersonville
Harris, F. R. ..... Henderson
Harris, I. A. ..... Alexander, R-2
Haywood, F. J. ..... Raleigh
Hicks, W. N. ..... Durham
Hill, L. H. ..... Germanton

*Deceased.

Hudson, W. L. ..... Dunn
Hughes, Frank W. ..... New Bern
Hunter, L. W. ..... Sardis
Irwin, J. R. ..... Charlotte
Jewett, Robert D. ..... Winston-Salem
Johnson, N. M. ..... Durham
Jordan, T. M. ..... Raleigh
Knox, A. W. ..... Raleigh
Leggett, Kenelm ..... Hobgood
Lewis, H. W. ..... Jackson
Lewis, R. H. ..... Raleigh
Long, Benj. L. ..... Hamilton
*Long, Geo. W. ..... Graham
Long, J. W. ..... Greensboro
Love, W. J. ..... Wilmington
McDonald, A. D. ..... Wilmington
*McKay, A. M. ..... Summersville
*McKay, John A. ..... Buies Creek
*McKee, Jas. ..... Raleigh
McMillan, B. F. ..... Red Springs
McMillan, J. D. ..... Edenton
McMillan, J. L. ..... Red Springs
McMillan, W. D. ..... Wilmington
McNeill, J. W. ..... Fayetteville
*McNeill, Wm. M. ..... Buies Creek
Meisenheimer, C. A. ..... Charlotte
Meisenheimer, T. F. ..... Morven
*Miller, J. F. ..... Goldsboro
Moore, C. E. ..... Wilson
Moore, Edwin G. ..... Elm City
Munroe, J. P. ..... Charlotte
*Nicholson, J. L. ..... Richlands
Nicholson, Saml. T. ..... Washington
Noble, R. J. ..... Selma
Noble, J. E. ..... Greenville
*Pate, Wm. T. ..... Gibson
Pemberton, Wm. D. ..... Concord
Perry, M. P. ..... Macon
Pharr, T. F. ..... Concord
Pharr, W. W. ..... Charlotte
Picot, L. J. ..... Littleton
Prince, D. M. ..... Laurinburg
Purefoy, Geo. W. ..... Asheville
Register, E. C. ..... Charlotte
*Ritter, F. W. ..... Moyock
Royster, W. I. ..... Raleigh
Schonwald, J. T. ..... Wilmington

---

*Deceased.

*Shaffner, T. F. ..... Winston-Salem
Sikes, G. T. ..... Grissom
Smith, R. A. ..... Goldsboro
Speight, R. H. ..... Whitakers
*Stevens, J. A. ..... Clinton
Summerell, E. M. ..... China Grove
Tayloe, D. T. ..... Washington
Taylor, I. M. ..... Morganton
Thomas, G. G. ..... Wilmington
Trantham, H. T. ..... Salisbury
Tull, Henry ..... Kinston
VanPoole, C. M. ..... Salisbury
Ward, W. H. ..... Plymouth
Way, J. Howell ..... Waynesville
Weaver, H. B. ..... Asheville
Whitaker, R. A. ..... Kinston
White, John W. ..... Wilkesboro
Whitehead, John ..... Salisbury
*Whitehead, W. H. ..... Rocky Mount
Whitfield, W. C. ..... Grifton
Whittington, W. P. ..... Asheville
Williams, J. H. ..... Asheville
Wilson, A. R. ..... Greensboro
*Young, R. S. ..... Concord

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

*L. McL. Tiffany ..... Baltimore, Md.
W. W. Keen ..... Philadelphia. Pa.
J. Allison Hodges ..... Richmond, Va.
*R. L. Payne ..... Norfolk, Va.
J. N. McCormack ..... Bowling Green, Ky.
R. L. Payne, Jr. ..... Norfolk, Va.
J. L. Ludlow, C.E. ..... Winston-Salem
Paul V. Anderson ..... Richmond, Va.
Stuart McGuire ..... Richmond, Va.
William J. Mayo ..... Rochester, Minn.
William Seaman Bainbridge ..... New York, N. Y.

OFFICERS 1918–1919

President ..... Dr. Cyrus Thompson, Jacksonville
First Vice President ..... Dr. J. W. Halford, Lillington
Second Vice President ..... Dr. T. W. Davis, Winston-Salem
Third Vice President ..... Dr. A. McN. Blair, Southern Pines
Secretary-Treasurer ..... Dr. Benj. K. Hays, Oxford

*Deceased.

OFFICERS, 1919–1920

President.....Dr. C. V. Reynolds, Asheville
First Vice President.....Dr. H. D. Walker, Elizabeth City
Second Vice President.....Dr. F. Stanley Whitaker, Kinston
Third Vice President.....Dr. Thos. I. Fox, Franklinville
Secretary-Treasurer.....Dr. Benj. K. Hays, Oxford

COUNCILORS, 1919–1922

First District—Dr. B. F. Halsey.....Roper
Second District—Dr. K. P. B. Bonner.....Morehead City
Third District—Dr. J. W. Tankersly.....Wilmington
Fourth District—Dr. E. T. Dickinson.....Wilson
Fifth District—Dr. A. McN. Blair.....Southern Pines
Sixth District—Dr. W. C. Horton.....Raleigh
Seventh District—Dr. L. A. Crowell.....Lincolnton
Eighth District—Dr. J. K. Pepper.....Winston-Salem
Ninth District—Dr. M. R. Adams.....Statesville
Tenth District—Dr. Eug. B. Glenn.....Asheville

CHAIRMEN OF SECTIONS

1920 Session

Practice of Medicine:
Hubert B. Haywood, Raleigh

Surgery:
Eugene B. Glenn, Asheville

Gynecology and Obstetrics:
J. M. Manning, Durham

Public Health and Education:
C. C. Hudson, Charlotte

Pediatrics:
J. Buren Sidbury, Wilmington

Anatomy, Physiology, Pathology, Bacteriology:
H. P. Barrett, Charlotte

Chemistry, Materia Medica and Therapeutics:
C. S. Mangum, Chapel Hill

Eye, Ear, Nose, and Throat:
C. W. Banner, Greensboro

Obituary Committee:
Arch Cheatham, Durham, *Chairman*
F. R. Harris, Henderson
E. G. Moore, Elm City
B. O. Edwards, Landis
N. D. Bitting, Durham

PROGRAM

GENERAL SESSIONS

Tuesday, April 15, 9:30 a. m.

OPENING EXERCISES—CAROLINA AUDITORIUM

Call to order:
Dr. L. B. McBrayer, Chairman Committee on Arrangements, Sanatorium, N. C.

Prayer:
Dr. H. E. Foss, Southern Pines, N. C.

Addresses of Welcome:
Mr. Leonard Tufts, Pinehurst, N. C.; Hon. H. F. Seawell, Carthage, N. C.; Dr. H. E. Bowman, Aberdeen, N. C.

Response:
Lt. Col. J. T. Burrus, High Point, N. C.

President's Address:
Dr. Cyrus Thompson, Jacksonville, N. C.

Report of Committee on Arrangements.
Announcements.

Tuesday, April 15, 2:30 o'clock

CAROLINA CARD ROOM

Meeting of House of Delegates.
Subsequent meetings at same place; time fixed by House of Delegates.

Tuesday Evening, April 15, 8:00 o'clock

CAROLINA AUDITORIUM

His Excellency, The Governor of North Carolina, Hon. T. W. Bickett.

What our Government is Doing in Vocational Therapy and the Rehabilitation of the Tuberculous Soldier at Oteen—Captain North, U. S. A. General Hospital No. 19.

The Disabled Soldier: Lessons from Canada's Experience (with moving pictures)—Prof. T. B. Kidner, Special Adviser to the Federal Board for Vocational Education, Washington, D. C.

Wednesday, April 16, 12 o'clock

Conjoint session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health.

MEMBERS OF THE STATE BOARD OF HEALTH

President, Dr. J. Howell Way, Waynesville.
Dr. Richard H. Lewis, Raleigh.
Col. J. L. Ludlow, Winston-Salem.
Dr. Thomas E. Anderson, Statesville.
Dr. Chas. O'H. Laughinghouse, Greenville.
Dr. Edward J. Wood, Wilmington.
Dr. F. R. Harris, Henderson.
Dr. Cyrus Thompson, Jacksonville.
Dr. E. C. Register, Charlotte.

EXECUTIVE STAFF OF THE STATE BOARD OF HEALTH

Secretary-Treasurer—Dr. W. S. Rankin, Raleigh.
Director State Laboratory of Hygiene—Dr. C. A. Shore, Raleigh.
Deputy State Registrar—Dr. J. R. Gordon, Raleigh.
Director Bureau of Tuberculosis and Superintendent of State Sanatorium—Dr. L. B. McBrayer, Sanatorium.
Director Bureau of Medical Inspection Schools—Dr. Geo. M. Cooper, Raleigh.
Director Bureau of County Health Work—Dr. B. E. Washburn, Raleigh.
State Epidemiologist—Dr. A. McR. Crouch, Raleigh.
Director Bureau of Infant Hygiene—Mrs. Kate Brew Vaughn, Raleigh.
Director Bureau of Venereal Diseases—Dr. Jas. A. Keiger, Raleigh.

ORDER OF BUSINESS

Report of work accomplished and recommendations.
Discussions.
New business.
Adjournment.

Wednesday Afternoon, April 16, 3:00 o'clock

Horse races, compliments Mr. Leonard Tufts. Admission by badge.

5:00 p. m.

Moving Picture, "At the End of the Road," Moving Picture Theater—Dr. J. A. Keiger, U. S. P. H. S., Raleigh, N. C.

Wednesday Evening, April 16, 8:00 o'clock

CAROLINA PARLORS

EXPERIENCES WITH THE COLORS

Maj. M. H. Fletcher, Asheville, N. C.
Capt. Benj. K. Hays, Oteen, N. C.
Lt. Com. R. D. Jones, U. S. N., New Bern, N. C.
Lt. Col. A. G. Brenizer, Charlotte, N. C.
Remarks by others.

COMMITTEE ON OBITUARIES

Dr. H. H. Dodson, Chairman, Greensboro, N. C.
Dr. T. C. Johnson, Lumberton, N. C.
Dr. L. N. Glenn, Gastonia, N. C.
Remarks by the Chairman, Dr. H. H. Dodson.

OUR HEROIC DEAD

With the Colors:

Dr. A. J. Crowell, Charlotte, N. C., Eulogist.

Names:

Dr. S. J. Hawes.....Dover, N. C.
Dr. J. W. Squires.....Charlotte, N. C.
Dr. M. C. Houser.....Charlotte, N. C.
Dr. Tate Moore.....Wilmington, N. C.
Dr. John E. Ray.....Raleigh, N. C.
Dr. Percy Harward.....Morrisville, N. C.

From Influenza:

Dr. W. M. Jones, Greensboro, N. C., Eulogist.

Names:

Dr. C. A. Sutton.....Beaufort, N. C.
Dr. E. W. Jones.....Hatteras, N. C.
Dr. V. L. Andrews.....Mt. Gilead, N. C.
Dr. John H. Matthews.....Vass, N. C.
Dr. B. J. Willingham.....Wilmington, N. C.
Dr. Arnold Stovall.....Wilmington, N. C.
Dr. W. F. Stephens.....Fairmont, N. C.
Dr. Exum .....Maxton, N. C.
Dr. Willis Alston.....Littleton, N. C.
Dr. J. S. Harrison.....Elm City, N. C.
Dr. T. H. Wilson.....Lucama, N. C.
Dr. E. W. Lassiter.....Rich Square, N. C.
Dr. J. R. Sutton.....Elk Park, N. C.
Dr. B. W. Cox.....Goldsboro, N. C.

From other Causes:

Names:

Dr. W. G. Stafford.....Burlington, N. C.
Dr. T. V. Goode.....Connelly Springs, N. C
Dr. C. W. Wallace.....Concord, N. C.
Dr. D. R. Dixon.....Rocky Mount, N. C.
Dr. P. E. Lucas.....Burgaw, N. C.
Dr. C. G. Nichols.....Roxboro, N. C.
Dr. J. A. Stevens.....Clinton, N. C.
Dr. Henry Sloan.....Lincolnton, N. C.
Dr. E. A. Hennessee.....Glen Alpine, N. C.
Dr. J. M. Caldwell.....Gastonia, N. C.
Dr. Ben Stroud.....Ore Hill, N. C.
Dr. W. H. Sherrill.....Sherrill's Ford, N. C.
Dr. Barton .....Jefferson, N. C.

Wednesday Evening, April 16, 9:30 o'clock

CAROLINA BALL ROOM

Convention Ball.

Thursday, April 17, 11:00 o'clock

CAROLINA AUDITORIUM

Report of House of Delegates.
Installation of Officers.
Resolutions.
Adjournment.

SECTION MEETINGS

TUESDAY, APRIL 15, 11:00 O'CLOCK

CAROLINA AUDITORIUM

Section on Practice of Medicine

Dr. E. J. Wood, Chairman, Wilmington, N. C.

Section on Anatomy, Materia Medica and Therapeutics

Dr. Wm. deB. MacNider, Chairman, Chapel Hill, N. C.

Cephalic Pain: Differential Diagnosis and Treatment—Dr. C. M. Byrnes, Baltimore, Md.

The Acute Changes in the Kidney in Chronic Nephritis Which are Followed by an Anuria: The Prevention of Acute Changes—Dr. Wm. deB. MacNider, Chapel Hill, N. C.

The Essential Facts in Nutrition: A Consideration of the Essential Substances in Food—Dr. Edward J. Wood, Wilmington, N. C.

Symposium on the Treatment of Influenzal Bronchopneumonia with the Serum of a Convalescent.

The Clinical Aspects—Dr. J. P. Munroe, Charlotte, N. C.

The Technic of the Procedure—Dr. H. P. Barrett, Charlotte, N. C.

The Rationale of the Treatment—Dr. Otho B. Ross, Charlotte, N. C.

Pellagra—Dr. K. G. Averitt, Cedar Creek, N. C.

The Treatment of Cardio-Vascular-Renal Disease in Country Practice—Dr. T. C. Johnson, Lumberton, N. C.

The Importance of a Routine Study of the Feces—Dr. L. E. Farthing, Pittsboro, N. C.

A Study of a Case of Acute Nephritis following Influenza—Dr. J. W. Freeman.

Bacterial Vaccine—Dr. C. A. Shore, State Laboratory of Hygiene, Raleigh, N. C.

The X-ray in the Diagnosis of Tuberculosis—Capt. H. Kennon Dunham, Oteen, N. C.

TUESDAY, APRIL 15, 11:00 O'CLOCK

CAROLINA PARLORS

Section on Surgery

Dr. L. N. Glenn, Chairman, Gastonia, N. C.

Radical Correction of Club-foot—Dr. L. N. Glenn, Gastonia, N. C.

The Barrel-stave Splint in Fracture of the Clavicle—Dr. Hubert A. Royster, Raleigh, N. C.

Plastic and Oral Surgery—Dr. C. W. Banner, Greensboro, N. C.

Treatment of Fractures of the Pelvis, with Report of Cases—Dr. E. B. Glenn, Asheville, N. C.

The Importance of After Treatment to Prevent Recurrence of Stone Following Nephrolithotomy—Drs. A. J. Crowell and Raymond Thompson, Charlotte, N. C.

Diagnosis and Treatment of Acute Empyema of the Chest—Lieut. Franklin A. Stevens, Washington, N. C.

A Satisfactory Traction Splint for the Lower Limb—Dr. E. T. Dickinson, Wilson, N. C.

Some Surgical Sequalæ of Flu—Dr. C. M. Strong, Charlotte, N. C.

Some Mooted Points in the Treatment of Syphilis—Capt. C. O. Abernethy, Raleigh, N. C.

Some Deformities of the Upper Alimentary Tract, as shown by the Rontgenogram (illustrated with lantern slides)—Dr. R. H. Lafferty, Charlotte, N. C.; Dr. W. O. Nisbet, Charlotte, N. C.

Tuesday, April 15, 3:00 o'clock

CAROLINA AUDITORIUM

Section on Obstetrics

Dr. J. R. Alexander, Chairman, Charlotte, N. C.

Treatment of Some of the Emergencies in Obstetrics—Dr. J. R. Alexander, Charlotte, N. C.

Accidents during Pregnancy—Dr. J. B. Whittington, Winston-Salem, N. C.

Medical Agencies in Labor—Dr. Annie L. Alexander, Charlotte, N. C.

Meddlesome Obstetrics—Dr. Reid Patterson, Charlotte, N. C.

There is No Midwifery Problem—Dr. Carroll Wiggins, Winston-Salem, N. C.

Criminal Abortion—Dr. Oren Moore, Charlotte, N. C.

Some Scattering Remarks on Obstetrics, with report of Three Cases of Rupture of Uterus—Dr. N. C. Hunter, Laurinburg, N. C.

The Induction of Labor at Term—Dr. John S. Clifford, Charlotte, N. C.

Some Complications Encountered in the Obstetrical Practice in the Country—Dr. J. W. Halford, Lillington, N. C.

Pituitary Extract in the Management of Labor—Dr. Thurmon D. Kitchin, Wake Forest, N. C.

Tuesday Afternoon, April 15, 3:00 o'clock

CAROLINA PARLORS

Section on Gynecology

Dr. H. W. McCain, Chairman, High Point, N. C.

A Consideration of Some Problems in Diseases of the Cervix Uteri—Dr. Alfred Heineberg, Philadelphia, Pa.

Cæsarean Section vs. any other Method of Treating Antepartum Eclampsia—Dr. D. A. Stanton, High Point, N. C.

Report of Case of Obstetrics Following Removal of Large Fibroid of Uterus—Dr. J. A. Williams, Greensboro, N. C.

Subject Unannounced—Dr. I. T. Mann, High Point, N. C.

Subject Unannounced—Dr. Ben. F. Royal, Morehead City, N. C.

Wednesday, April 16, 9:00 o'clock

CAROLINA BALL ROOM

Section on Public Health and Education

Dr. D. E. Sevier, Chairman, Asheville, N. C.

1. Influenza Experience Gained in Epidemic in Asheville—Dr. C. V. Reynolds, Asheville, N. C.
2. Milk Supply for Small Cities, Illustrated with Lantern Slides—Dr. J. M. McCormack, Asheville, N. C.
3. The Fundamental Principles of Public Health Nursing—Miss Rose M. Ehrenfeld, State Director of Public Health Nursing, Sanatorium, N. C.
4. (a) Unification of Nursing Activities Under Health Departments.
   (b) Outline of a Plan for the Education of Home Nurses—Dr. Chas. E. Low, Health Officer, Wilmington, N. C.
   (c) The Milk Station.
   (d) Baby Clinic—Miss Columbia Munds, Supervisor of Nurses, Wilmington, N. C.
5. (a) The Importance of the Supervising Nurse and Her Qualifications.
   (b) The Tuberculosis Clinic—Dr. C. C. Hudson, Health Officer, Charlotte, N. C.
6. The Tuberculosis Clinic in the County Health Department—Dr. A. J. Warren, Health Officer, Salisbury, N. C.
7. The Control and Education of Midwives as a Public Health Problem—Dr. G. W. Botts, Health Officer, Nashville, N. C.
8. The Public Health Nurse Specializing in School Inspections—Miss Nora Pratt, Bureau of School Inspections, State Board of Health, Raleigh, N. C.

5:00 p. m.

9. Moving Pictures, "At the End of the Road," Moving Picture Theater—Dr. J. A. Keiger, U. S. P. H. S., Raleigh, N. C.

Wednesday, April 16, 9:00 o'clock

CAROLINA CARD ROOM

Section on Eye, Ear, Nose and Throat

Dr. A. M. Whisnant, Chairman, Charlotte, N. C.

The Eye as an Aid in Diagnosis and Localization of Intracranial Lesions—Dr. Louis N. West, Raleigh, N. C.

Infections of the Nasal Accessory Sinuses (Observation in Recent Cases)—Major John W. MacConnell, Davidson, N. C.

Treatment of Dacryocystitis—Dr. J. G. Johnson, Charlotte, N. C.

Dacryocystitis—Dr. E. S. Warlick, Morganton, N. C.

Report of Two Interesting Esophageal Cases—Dr. John B. Wright, Raleigh, N. C.

Club Operations for School Children—Dr. G. M. Cooper, Raleigh, N. C.

Intubation: A Different Way—Dr. O. C. Daniels, Goldsboro, N. C.

Thursday, April 17, 9:00 o'clock

CAROLINA AUDITORIUM

Section on Pathology, Physiology, Bacteriology and Chemistry

Dr. S. A. Stevens, Chairman, Monroe, N. C.

Corpus Luteum: Its Use in the Treatment of Some Disorders of the Sexual Organs—Dr. S. A. Stevens, Monroe, N. C.

Chemistry: Its Neglect by and Importance to the Physician—Dr. J. W. Neal, Monroe, N. C.

Treatment of Syphilis with Mercury: Its Mode of Absorption and Excretion—Dr. J. A. Elliott, Charlotte, N. C.

Hyper- and Hypothyroidism—Dr. R. H. Garren, Monroe, N. C.

Physiology of the Internal Ear—Dr. C. N. Peeler, Charlotte, N. C.

Thursday, April 17, 10:45 o'clock

Section on Pediatrics

Dr. Charles Roberson, Chairman, Greensboro, N. C.

Active Immunization Against Diphtheria—Dr. J. Buren Sidbury, Wilmington, N. C.

FOREWORD

Captain Benj. K. Hays, Secretary-Treasurer, continues with the colors, seeing service at this time with the U. S. A. General Hospital No. 19, at Oteen, near Asheville, which General Hospital devotes itself to the treatment of tuberculosis.

At his request and at the request of the President, sanctioned by the Nominating Committee, I continue as Acting Secretary-Treasurer. Any errors or omissions are therefore chargeable to me. My earnest desire is that every physician in North Carolina may become a member of his County and State Societies.

Sincerely,

L. B. McBrayer.

MINUTES

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

TUESDAY MORNING, APRIL 15, 1919

Call to order by Dr. L. B. McBrayer, Sanatorium, Chairman of the Committee on Arrangements.

Invocation: Rev. Elmer Willis Serl, Pastor Congregational Church, Southern Pines.

Address of Welcome: Mr. Leonard Tufts, Pinehurst.

Address of Welcome in Behalf of the Moore County Medical Society: Dr. H. E. Bowman, Aberdeen.

Address of Welcome in Behalf of the Sand Hill Section: Hon. H. F. Seawell, Carthage.

Response to Addresses of Welcome: Lt. Col. J. T. Burrus, High Point.

Annual Address of the President: Dr. Cyrus Thompson, Jacksonville.

President's Address referred to Committee on Publication.

Announcements.

Section on Surgery

Dr. L. N. Glenn in the Chair

Radical Correction of Club-foot: Dr. L. N. Glenn, Gastonia.

The Barrel-Stave Splint in Fracture of the Clavicle: Dr. Hubert A. Royster, Raleigh.

Fractures of the Pelvis, and Treatment, with Report of Cases: Dr. Eug. B. Glenn, Asheville.

Some Observations on Plastic and Oral Surgery as Seen in the A. E. F.: Dr. C. W. Banner, Greensboro.

The Pre- and Postoperative Treatment to Prevent Recurrence of Stone Following Nephrolithotomy: Dr. A. J. Crowell and Dr. Raymond Thompson, Crowell Urological Clinic, Charlotte.

Section on Practice of Medicine
Section on Anatomy, Materia Medica and Therapeutics

Dr. E. J. Wood in the Chair

A Consideration of the Essential Substances in Food: Dr. Edward J. Wood, Wilmington.

The Diagnosis and Treatment of Certain Types of Cephalic Pain: Dr. C. M. Byrnes, Baltimore.

Tuesday Afternoon

Meeting of House of Delegates.

Section on Surgery

Dr. L. N. Glenn in the Chair

Some Surgical Sequelæ of Flu, and Their Treatment: Dr. C. M. Strong, Charlotte.

A Satisfactory Extension Splint for the Lower Limb: Dr. E. T. Dickinson, Wilson.

The Diagnosis and Treatment of Acute Empyema: Franklin A. Stevens, Lt. M. C., U. S. Army, Walter Reed General Hospital, Washington, D. C.

Some Mooted Points in the Treatment of Syphilis: Dr. C. O. Abernethy, Raleigh.

Some Deformities of the Alimentary Canal, as Shown by the Röntgenogram: Dr. R. H. Lafferty, Charlotte.

Section on Gynecology

Dr. H. W. McCain in the Chair

A Consideration of Some Problems in Diseases of the Cervix Uteri: Dr. Alfred Heineberg, Philadelphia, Penn.

Section on Practice of Medicine
Section on Anatomy, Materia Medica and Therapeutics

Dr. E. J. Wood in the Chair

My Experience with Dr. Goldberger's Theory of the Cause of Pellagra: Dr. K. G. Averitt, Cedar Creek.

The Recognition and Treatment of Cardio-Vascular-Renal Diseases in Country Practice: Dr. T. C. Johnson, Lumberton.

The Importance of the Routine Study of the Feces: Dr. L. E. Farthing, Wilmington. Read by title.

Bacterial Vaccine: Dr. C. A. Shore, Director State Laboratory of Hygiene, Raleigh. Read by title.

Convalescent Human Serum and Other Serums in Treatment of Influenza Pneumonia: Dr. J. P. Munroe, Charlotte.

Method of Preparing the Human Convalescent Serum and Plasma: Dr. H. P. Barrett. Read by title.

Section on Obstetrics

Dr. J. R. Alexander in the Chair

Treatment for Some of the Emergencies in Obstetrics: Dr. J. R. Alexander, Charlotte.

Medical Agencies in Labor: Dr. Annie L. Alexander, Charlotte.

Meddlesome Obstetrics: Dr. Reid Patterson, Charlotte.

Criminal Abortion: Dr. Oren Moore, Charlotte.

The Induction of Labor in Normal Pelves at Term: Dr. John S. Clifford, Charlotte.

Some Scattering Remarks on Obstetrics, with Report of Three Cases of Rupture of Uterus: Dr. N. C. Hunter, Laurinburg.

Tuesday Night

Dr. Cyrus Thompson in the Chair

Introduction of Governor T. W. Bickett: Maj. J. Howell Way, Waynesville.

Address: Hon. T. W. Bickett, Governor of North Carolina.

The Disabled Soldier: Lessons from Canada's Experience (with moving pictures): Prof. T. B. Kidner, Special Adviser to the Federal Board for Vocational Education, Washington, D. C.

Wednesday Morning

Section on Gynecology

Dr. H. W. McCain in the Chair

Cæsarean Section versus Any Other Method of Treating Antepartum Eclampsia: Dr. D. A. Stanton, High Point.

The Spread of Cancer Knowledge: Dr. Ben F. Royal, Morehead City.

Section on Obstetrics

Pituitary Extract in the Management of Labor: Dr. Thurman D. Kitchin, Wake Forest.

Section on Public Health and Education

Dr. D. E. Sevier in the Chair

Chairman's Address—A Plea for Coöperation upon the Part of Physicians and the Public in Public Health Activities: Dr. D. E. Sevier, Asheville.

Influenza Experience Gained from Epidemic in Asheville: Dr. C. V. Reynolds, Asheville.

Milk for the Small Town: L. M. McCormick, Asheville. Read by title.

Fundamental Principles of Public Health Nursing: Miss Rose M. Ehrenfeld, State Director of Public Health Nursing, Sanatorium.

Unification of Nursing Activities under Health Departments; Outline of a Plan for the Education of Home Nurses: Dr. Chas. E. Low, Health Officer, Wilmington.

Sorosis Milk Station; Baby Clinic: Miss Columbia Munds, R.N., Supervisor Public Health Nurses, Wilmington.

The Importance of the Supervising Nurse and Her Qualifications; The Tuberculosis Clinic: Dr. C. C. Hudson, Health Officer, Charlotte. Read by title.

County Tuberculosis Clinic in Connection with the Whole-Time Health Department: Dr. A. J. Warren, Health Officer Rowan County, Salisbury.

Section on Pediatrics

Dr. E. J. Wood in the Chair

Active Immunization against Diphtheria: Dr. J. Buren Sidbury, Wilmington.

Section on Eye, Ear, Nose and Throat

Dr. R. H. Lewis in the Chair

The Eye as an Aid in Diagnosis and Localization of Intracranial Lesions: Dr. Louis N. West, Raleigh.

Treatment of Dacryocystis: Dr. J. G. Johnston, Charlotte. Read by title.

Two Interesting Esophageal Cases: Dr. John B. Wright, Raleigh.

Club Operations for School Children: Dr. G. M. Cooper, Director Bureau of Medical Inspection of Schools, State Board of Health, Raleigh.

Motion to appoint committee. Carried.

Intubation: A Different Way: Dr. O. C. Daniels, Goldsboro.

A Double Mastoid Following Influenza: Dr. H. M. Bonner, Raleigh.

Election of Dr. C. W. Banner, of Greensboro, as Chairman of Section on Eye, Ear, Nose and Throat.

WEDNESDAY, 12 M.

Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health.

WEDNESDAY AFTERNOON

Meeting of House of Delegates.

WEDNESDAY NIGHT

Dr. Thompson in the Chair

Experiences with the Colors: Maj. M. H. Fletcher, Asheville.

Oteen: Capt. Benj. K. Hays, Oteen.

Memorial Exercises.

Appointment of committee on erection of memorial.

Meeting of House of Delegates.

THURSDAY MORNING

Dr. Thompson in the Chair

Section on Pathology, Physiology, Bacteriology, and Chemistry

The Physiology and Organotherapy of the Corpus Luteum: Dr. S. A. Stevens, Monroe. Read by title.

The Treatment of Syphilis with Mercury: Its Mode of Absorption and Excretion: Dr. Joseph A. Elliott, Charlotte.

Section on Obstetrics

Accidents Encountered in the Practice of Obstetrics in the Country, with Report of Cases: Dr. J. N. Halford, Lillington.

Vote of thanks to Carolina Hotel, Moore County Medical Society, and Dr. L. B. McBrayer.

Report of House of Delegates.

Installation of officers.

Election of member of Nurses' Examining Board.

Adjournment.

TRANSACTIONS

OF THE

SIXTY-SIXTH ANNUAL SESSION OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

OPENING EXERCISES

Tuesday Morning, April 15, 1919

Dr. L. B. McBrayer, Sanatorium, Chairman, Committee on Arrangements: The sixty-sixth annual session of the Medical Society of the State of North Carolina will be in order. Prayer will be offered by the Reverend Elmer Willis Serl, of Southern Pines.

INVOCATION

Rev. Elmer Willis Serl, Pastor Congregational Church, Southern Pines

Our Father, we thank Thee this morning as we enter into this session that we have Thy inspiration and dependable guidance. We believe that Thou art with us in our thoughts and in all of our plans. Thou art the light of all persons everywhere, and especially of those who give themselves in forms of service.

Every man on the earth who is working in the interests of humanity is called of God. This earnest group of men gathered in this conference are indeed called of God, because of the relation of their work to the individual, community and national welfare.

A long time ago a Man, who spoke Thy mind, said that the body was the temple of God, and that care of the body was service of God. Our Father, speak, then, to our hearts and minds that we may know how to preserve this temple from desecration. Let the Holy Spirit dwell within us, and let us in our needs turn to Thee. Those gathered in this room are interested in the most wonderful of Thy creations. Bless these men who are keepers and cleansers of Thy temple.

May they know that there is a fellowship of truth-seeking disinterestedness in service. Encourage them with Thy supreme inspiration. May every one here be guided by Thy spirit to labor for the good of men everywhere, and may the welfare of the people of this State be achieved more rapidly because these men and women are here and are seeking for the things which make for the best life, and to keep Thy temple healthy, pure and cleansed.

We speak of these things to-day in the name of Jesus Christ. Amen.

Dr. McBrayer: Mr. Leonard Tufts, the owner of this establishment, is loved by all who know him. We desire that everyone here shall know him, and he is going to speak a word of welcome to you at this time.

ADDRESS OF WELCOME

Mr. Leonard Tufts, Pinehurst

Mr. Chairman, Ladies and Gentlemen:

My only regret this morning is that I am unable to talk. If I could tell you how very welcome you are, and if I could express to you how we here in the sand hills feel, and how wonderfully pleased we are to know that such a representative organization is coming here not only once but twice, I could do something that would give me a great deal of pleasure. It is unfortunate that I am not able to express it, and that I am not able to tell you how strongly I personally feel that your organization and your profession is the only one that does everything in its power to prevent that which furnishes it a livelihood—namely, disease. Every other organization, every other profession is trying to do everything to increase its opportunities. Your organization and your profession is the only one in the world that I know of that does the reverse.

It is especially pleasurable to me to have any organization of North Carolina come to Pinehurst and into the sand hills, because we down in Moore County have been the laughing stock for so many years of the whole State, and it is a great pleasure to have you gentlemen from different portions of the State to come once in a while and to show you that we are not quite so bad as we look. I often think of the experience I had in Richmond when I met Colonel Henderson, of Aiken, S. C. We were talking about the roads in our home counties. The Colonel had never been to Pinehurst. Colonel Henderson said they were pretty poor down in Aiken, and they couldn't do much for the roads because they were so poor. I said "Colonel, we are mighty poor around our section. I believe it is the poorest section of North Carolina, and the poorest section of the world, perhaps." The Colonel swelled right up and said, "I know where the poorest section of North Carolina is, and the poorest section of the world." He said, "During the war Sherman's Army was pushing us along kind of fast and I tore my breeches, and a friend and myself stopped in a little cabin out in the woods to get an old lady to mend them for me. Meantime our army moved on, and while my breeches were being mended some one ran in and said, 'The Yankees are right on top of you!' We got out in the woods, and we

spent three days there until we finally got back with our Division, and I tell you, Mr. Tufts, that section was the poorest section of any place in North Carolina, or in the world, for that matter. Why, that land wouldn't grow anything but hen's-nest grass and forked-leaf black jacks." I asked, "Where was that, Colonel? It sounds mighty familiar." He replied, "That was in Moore County, about 12 miles south of Carthage, N. C." (Applause).

So it is certainly a great pleasure to show you ladies and gentlemen that there are some things that we have done here.

A good many years ago some one planted some peach trees—I don't know why, I guess he was crazy. They have been quite successful raising peaches, tobacco, etc., but perhaps there are only two things to interest particularly your profession, and one is the fact that we have been in these sand hills the leaders for the world, or at least for the United States, I believe, in showing the people of the United States who are confined to offices, busy with a great amount of brain work, that it is necessary for them to get out for a certain length of time each year and have some form of recreation in order to prolong their lives. It is a very noticeable fact that those business men who come down here, sometimes for only a few weeks at a time, have been greatly benefited by the outdoor exercise—golf, tennis, and the like; and I think from that standpoint we have done something for the upbuilding of the manhood of the United States.

The other thing that I think we have done, or at least started to do, is to try to make the conditions for the country people in this section more nearly approach the conditions that they would find in the cities. We have tried to establish schools, especially farm-life schools, to teach people—men and boys and girls—how to become farmers, not (as so many of the schools have done in the rural districts) how to become clerks, stenographers and bookkeepers. Education in the United States is based on the education in the cities, where the method of education that has been established is of benefit to the people who live in the cities. We have tried to establish a method of education here which is, I trust, of benefit to the people who live in the country.

We have tried through the work of the physicians of this section to make a hospital that will in some way approach the hospital perfection of the cities, in the James McConnell Memorial Hospital at Eureka, and we have tried in some other ways to approach, in the country, the advantages of the city.

It is very wonderful to have you back here for a second time, and I thank you for myself and for the people of the sand hill section. We most cordially and heartily and sincerely thank you for your patronage.

Dr. L. B. McBrayer: On yesterday the Secretary of the Health Officers' Association, in calling the roll, developed the fact, and called your attention to it, that there was no health officer present from Moore County or any of the counties adjoining Moore County, except Dr. Daligny. But that is not to be taken as an indication of lack of interest, among the medical profession in this section, in professional matters in general and in our State Society in particular, and we are at this time going to have an address of welcome on behalf of the medical profession of this section, and particularly of Moore County, by Dr. H. E. Bowman, of Aberdeen.

ADDRESS OF WELCOME ON BEHALF OF THE MOORE COUNTY MEDICAL SOCIETY.

Dr. H. E. Bowman, Aberdeen

Mr. Chairman, Ladies, and Gentlemen of the State Medical Society of North Carolina:

Some years ago—and not so many years at that—a good old judge, who had just presided over our court at Carthage, was driving through this very section on his way to his next appointment in an adjoining county. The day was hot and the horse was slow. After listening for a long time to the monotonous grinding of the wheels in the sand, the judge turned to his companion and remarked that he believed the Almighty had some good purpose in view for all His works, but that His wisdom in creating Moore County had not yet been made manifest. But if that good gentleman could have sat with us today in this palatial hall and listened to the words of our gracious host; if he could look out across this smiling land and see how it blossoms like the rose of Sharon and the lily of the valley; if he could see how the earth has bared her bosom to the kisses of the sun in these broad fields and orchards, between which, like pulsing arteries, course these level roads; if he could see how from every hilltop a church spire points upward to the sky, and how every valley holds a crowded school house; if he could see these quick-wrought changes that have taken place, surely he would not repeat that cruel sarcasm.

We are no longer ashamed of Moore County—if we ever were. On the contrary, we are proud of it. It is a good place to live in, and a difficult place to die in. We are proud of Pinehurst as one of the greatest playgrounds and recreation centers of our land. But if Moore County were twice as lovely as we think it is, and if the attractiveness of Pinehurst were doubled, they would not yet measure up to the welcome we would extend to this distinguished company.

Our local organization, with questionable judgment, has chosen me to greet you in their name. I fear I shall not be able to do this acceptably, in any set terms of formal flattery, for I am little versed in that polite art. But we believe that the sixty-sixth annual meeting of this great Society, coming as it does in the spring of 1919, deserves a warmer welcome at our hands, and at the hands of all, than perhaps it has ever received before. It will not be unfitting, I trust, that I should briefly attempt to render some reason for that belief.

It is true that, by the very nature of your profession, you are in continual conflict with those forces which are inimical to human life. It is your business, and you and all others take it as a matter of course.

But since you met here last, you have lived through a twelve-month unparalleled by any we have ever known; a period so strenuous and soul-testing that it will go down in history, I doubt not, as the banner year of death. The destruction that wasteth at noonday has taken its thousands, and yet has been outdone by the pestilence that walketh in darkness. And that home is fortunate indeed whose portals are still undarkened by the shadow of the death angel's wing. The part that you have played, the burdens that you have borne throughout this trying time, should entitle you to a welcome, not only here, but in every place where faithfulness to duty and devotion to ideals are ranked as human virtues.

At your country's call you gave most freely of your best, and sent them forth to the shambles of Armageddon, and you offered many more. On firing line, in first aid station, and in hospital ward, full nobly they have done their part for home and for humanity—with skill, and with that gallantry, I am sure, that should be the heritage of every son of the Old North State. Some of them have returned, and we welcome them with glad acclaim. Others have not come back, but will. Yet others will never come, and golden stars, with sad significance, blaze forth among the blue.

Later, you were called upon to repel an invasion of our own country, and in the autumn of 1918, when that great lethal wave of pestilence swept down across our land, there were no slackers in your ranks, but every man was at his post. Above them no gorgeous banner waved its silken folds; no trumpet blast or bugle's fanfare rang out to thrill them into forgetfulness of danger; no pomp or panoply of war was there to throw about them its deceptive glamour; no shoutings of the captains urged them on. Yet, with dauntless spirit, and with unbroken front, they faced that silent, deadly foe, and fought it to the end.

"Peace hath her victories" (and her heroisms) "no less renowned than war." We shall not forget (and let the world remember!) that

today, in the burgeoning springtide, the grass is starting on many a new-made grave in many a village churchyard, where sleep those unheralded heroes of your profession who risked and lost their lives in the service of humanity, just as definitely, and just as unflinchingly, as those in uniform of forest green and olive drab. And we are not unmindful of the fact that each one of you was, potentially, one of those.

You stand in a peculiarly close relation to the people. Fitly might you say to them, in the words of Kipling:

> "I have eaten your bread and salt;
> I have drunk of your water and wine;
> The deaths that ye died I have watched beside,
> And the lives that ye lived were mine."

Through this close relationship in life and death, you wield a tremendous influence. That influence, we are proud to believe, has, in all essential things, been ever exerted for good citizenship and for the betterment of humanity. In the unsettled days that are inevitably coming, as a result of that fierce ebullition of human passions through which we have passed, and are still passing, we know that we may look with confidence for that influence to be still strong for sanity and conservation. We know that each one of you, as he goes his daily rounds, will be, as it were, a social and moral gyroscope to steady and sustain the ship of state, in these troubled waters, against all Bolshevistic rockings of the boat.

For all, then, that you have been, that you are and that you will be to those you serve, we give you most cordial greeting. May the days you spend with us be halcyon days, to which you may never look back without a smile.

Dr. McBrayer: The lamented Bob Taylor, whose tongue was of silver (and his pockets must have been of gold, else he could not have married so often), would have you believe that the mountains only were conducive to the production of orators among men. But we have here, as Exhibit A, the speaker who has just taken his seat, to present to your minds, in a psychological way that will make it stick, the fact that the sand hills also create orators.

As Exhibit B of the eloquence of the sand hill section—and I shall be in no danger of trouble if I take in a larger area—we desire to present the Hon. H. F. Seawell, of Carthage, who will speak a word of welcome on behalf of the sand hill section.

ADDRESS OF WELCOME ON THE PART OF THE SAND HILLS TO THE STATE MEDICAL SOCIETY

Hon. H. F. Seawell, Carthage

Mr. President, Members of the North Carolina Medical Society, Ladies and Gentlemen:

I esteem it a high privilege and a most agreeable compliment personally to be permitted to say to your distinguished Society that you, and each of you, are welcome to our sand hills.

We think the sand hills are great, and that you and your profession are great, and that you are undertaking great things and accomplishing great things. We feel that there is no better place for you to meet than in the sand hills, and we know that there is no convention which the sand hills could be more delighted to entertain.

You may detect, if you are very observant, that there is a slight tendency on the part of those who reside here to boast about the sand hills. Some of our people have for a long time understood that the psalmist David spoke of the sand hills of Moore when he said, "Let the little hills rejoice on every side." But these hills were not always as they are now. The Lord made them and planted them with the beautiful yellow pine and mixed sunshine in the soil, and health and contentment in all the shrubs and flowers, but for centuries it was supposed that He left out the real staff of life, and those coming here were admonished to bring their provisions with them.

At the first a few hardy Scotchmen, fresh from the bleak hills of their native heath, tried the experiment of making a living here. They subsisted by killing the native deer and bleeding the beautiful forests. Then the sawmill men came and chopped up the Scotsman's goose that had laid him golden eggs, and carried her off in the shape of sills and planks, and it was feared that Scotia's sons would perish from off the earth—and perhaps they would have, but they could not die because they could not get sick here. There were few, if any, doctors here, and they, perhaps, had not been taught how to deal with such a novel situation.

It was once said by some alleged law-writer, discoursing on the duties of coroners, that when a man died suddenly without an attending physician, the coroner should hold an inquest to find out what killed the deceased, but if he had been sick for some time and had had an attending physician, it was not necessary to hold an inquest, for everybody then knew what killed him.

My uncle used to tell a joke on my father, who is, and for more than fifty years has been, an active practicing physician. My uncle would say that on one occasion, while going about the countryside with my

father, they chanced to meet a good old colored man who, in characteristic fashion, clasped his hands together and with beaming countenance said: "Lord bless me, dat's Doctor Seawell. He's de bestest doctor in Ameriky. He doctored my wife when she died."

But in reference to the sand hills, I must say that it was the elder Mr. Tufts and his compatriots, and the present owner of Pinehurst, this beautiful village and its surroundings, who taught us the value, not alone of the health-giving qualities of our land, but of its productivity as well. The native, under this tutelage, has begun rightly to appreciate his home, and the visitor has learned that he can come here and stay without being compelled to bring his provender with him.

To the beauties and pleasures and the abundance of all things intended for man's good, which are to be found here in this the sand hill region, I, as its spokesman for the time being, bid you welcome.

You are welcomed, not alone because we think we have a goodly place, made so by nature and the handiwork of man in suiting nature's provisions to man's civilized needs, but because also we appreciate your high calling and purposes, your unselfish devotion to making men everywhere better physically and mentally, and therefore also better spiritually.

I believe it is no longer considered the only or even the main object of the doctors to cure diseased people, but rather to prevent people from becoming diseased, just as it should be the object of lawyers not so much to get people out of trouble as to keep them from getting into trouble. The wise patient consults his physician before he becomes sick and follows his advice and keeps well, and the wise client consults his lawyer before he goes to jail or ruins his business, and stays out of jail and the bankrupt court. I recently heard a very learned gentleman in a public lecture say that it is now a disgrace to be sick, and in some places it is still considered a disgrace to go to jail, even if Paul and Silas were in jail singing psalms at midnight.

Your profession has made, and perhaps is making, more progress than any other which adorns our present civilization. The farmer is probably next to you in this regard. The lawyers are forever delving into the musty tombs of forgotten erudition (which is another name for learning that has no practical use), and still discussing, after a thousand years, the relative merits of the common law of England as compared with the civil law of Rome; while our brethren of the clergy, as in the time of Thomas à Becket and the Crusades, are discoursing on original sin and infant damnation.

Perhaps we are all fulfilling our mission, and doing the best we can, but we must all yield to you the palm of real, helpful, useful progress

in making the world better by reason of your living in it. From the days of your blood-letting and leeching, bread pills and drastic nostrums and quackery, which is really a far cry, you have, by your tireless efforts, made such discoveries in your science, and such progress in health and sanitation, that the world seems almost a new place. "Greater things than these shall ye do" seems a prophecy brought to pass in your profession alone.

It is the full and open-minded discussion of the topics of your science in your conventions, such as that here assembled, and the mutual helpfulness of the members of your great profession, that have added knowledge to knowledge and skill to skill, and continue to lead you to your highest ideals.

We trust that your stay among us may be pleasant and profitable, but we realize that you are not here merely for pastime and recreation, much as some of you may need it from your busy lives of useful toil. All of you deserve some rest; take it now, between sessions; listen to the birds that sing, look upon the flowers that bloom, smell the fragrance of the dew damp on the trees; take your good wives—God bless them, they, too, are also all of them welcome—and visit our neighboring villages, the county-site, the Farm-Life School, the Sanatorium; look at our good roads, view the countryside; and know that at all times, and in whatsoever place you are in this goodly section of the sand hills, you are most cordially and heartily welcome.

Dr. L. B. McBrayer: One of the greatest pleasures of my professional life has been to watch the development and growth of my professional brethren. Not so very long ago, the gentleman who will respond to these addresses of welcome entered our medical profession, and, as all good doctors do, he connected himself with his local medical society and with the state and national associations. He has attended regularly and conscientiously these sessions. He has contributed his part as best he could at all times to the elevation and to the promotion of the interests of the profession to which he devotes his life.

When the need of physicians was sounded throughout the land to care for our boys who should go overseas or who should stay at home, he was prompt to hear the call and answer, "Here am I, send me." It was natural that our Government should recognize his ability, just as we do; and hence none of us were surprised to note that rapidly he attained to the highest rank that was meted out to our volunteer physicians.

I was on the train only a few days ago and happened to find one of my friends who also wore the khaki and honored it, and in conversation I found out he had been serving in the same cantonment with the

gentleman who will speak to you. It was a great pleasure to hear my friend say that he had rendered such fitting service as commanding officer of the base hospital at that point, and also how well he had handled the terrible epidemic of influenza that did not spare our boys over there, as it did not spare those others at home.

It is a great pleasure for me to present to you Lieutenant Colonel J. T. Burrus, who will respond to these addresses of welcome.

RESPONSE TO ADDRESSES OF WELCOME

Lt. Col. J. T. Burrus, M.D., High Point, N. C.

Mr. Chairman, Ladies and Gentlemen:

On behalf of the State Medical Society I wish to accept the hearty welcome that has so eloquently been extended to us this morning. We will accept, gentlemen, your hearty welcome. We will gladly receive all that you have asked us to receive and we will also gladly receive more.

We come here, a body of men who have given our time and given our lives and given our thought and our best effort for the relief of suffering humanity, for the prolongation of life, to have a place where our deliberations can be clear and can be free, a place that is conducive to the very best thought and best attention. We know of no better place where we could assemble than here in this beautiful section of North Carolina. When we think of our wonderful State institution on the one side, when we think of the wonderful work it has done, and when we realize that in this institution there have been handled between 1,500 and 1,800 of what was considered a few years ago the hopeless of our citizenship, and when we realize that this institution has placed actively at work more than fifty per cent of those intrusted to its care and to its treatment, certainly we are delighted to come and deliberate in a place contiguous to such an institution.

We think of this as being a barren sand hill a few years ago, really and truly, not producing any thing at all. The gentleman from South Carolina was quite right when he stated that it was so poor that the mice in this section had to leave it because it did not grow enough to support them.

But to-day, since the coming of Mr. Tufts to this section, to these sand hills, and the work that he has done for this section in road building, in farm education, and in the establishing of a permanent citizenship—a citizenship that are to-day prospering and will continue to prosper more in the future than in the past—we are delighted to come and look upon the monuments that have been established largely through his efforts.

As we come to deliberate and to think of the many changes that have taken place in the past years, we assemble here with the very greatest pleasure because, as a few months ago I heard an old darky say, it is nearer to heaven from Moore County than anywhere else in the world, and he wanted to get back to Moore County to die.

What the profession has done in the past stands as an open book. You know it, we all know it. We know that while we have not had so many doctors here, Dr. Bowman, you have done your work well, and the profession of North Carolina may be glad for the membership that it has in Moore County.

We accept your welcome, gentlemen, and we shall endeavor to make ourselves agreeable guests for you.

Dr. L. B. McBrayer: I have about completed my duties as chairman of the Committee on Arrangements, but the most important thing that I shall say while performing the duties of that office I shall say now. Ladies and gentlemen of the Conference, I present your President.

Dr. Cyrus Thompson, President: I shall speak just a few preliminary words. You overwhelmed me by expressions of your kindness a year ago when you elected me to the presidency of this Society, and you well nigh overwhelm me here by your continued expressions of kindness again this morning. I thought perhaps the fervor of your love had somewhat subsided, but I am now about of the opinion that it has become chronic.

I want to say that I appreciate more than I can express to you the kindness through years without interruption which you have shown toward me, and now this morning I am going to speak to you not offhand, but from manuscript—just a little bit, not long—out of the daily thinking of a faithful, happy old man. There is not anything funny in what I am going to say, it is all serious; and it all leads along the highway of human happiness. I have chosen to talk to you this morning about "The Art of Living."

PRESIDENT'S ADDRESS

The Art of Living

We are met here in an atmosphere far different from that which surrounded us in 1917 and 1918, but at a time none the less pregnant with perilous and unsolved problems. These past years were years of unparalleled storm and stress and anxious tension. They were years of phenomenal waste and stupendous destruction of wealth and happiness and life. I fain would hope that such destruction is beginning to find

its perpetual end, and that we are now about to enter upon a period of beneficent reconstruction such as the world has never known.

In 1917, our country was just entering the world conflict, which though 3,000 miles away yet swirled about us like a cruel vortex, but into which every sense of right and justice and safety, every sentiment of honor and humanity and wise selfishness, impelled us.

In 1918, the prime and pride of young American manhood was rushing overseas to the wavering lines of carnage in France, and the flower of our profession were going or chafing to go with them for the necessary service which they might render to our own and the allied armies. No prophet could foretell when the mighty conflict would end, nor into what straits we might come. The Nation's heart, like flint, was set from tenderness to endure, whatever the sacrifice and whatever the length of it—with equal courage for duty and faith as to the outcome.

In 1919, the storm is lulled as if tired of its own fury; the stress is slackened; the slaughter is stayed; the weary and wounded world takes some sort of resting spell; our dead are asleep in friendly soil, and the living are coming back home again. Sorrow, sad-eyed, slumbers in the breast of gratitude, and we are jubilant for the victory which the Judge of all the earth through us in fulfilment of our destiny hath thus far given unto His people. The tension of our anxiety is gone, and we live in the calm of patient courage, the courage that is born of reverent faith and dreams of a divine purpose, the fruition of which needs our human help, the faithful courage that senses and stands four-square to the measureless obligations of a quieter sort which bind and energize good men in a time of peace.

For the problems of peace, while less urgent it may be and slower of solution, are no less serious than the problems of war; and the solution of them demands no less conviction, no less fortitude and zeal and wisdom of leadership.

The art of living is the finest of all fine arts. It is also the art which both individuals and nations of men are slowest to learn. But in all nations individuals are readier to learn it than are nations themselves. These good men are the salt of the earth. You may find civilized men in every nation in the world, but nowhere in the world may you find a civilized nation. In every nation you may find individuals honest and neighborly to individuals of any other nation, but an honest and neighborly nation is as yet an unknown social product. If every man in a nation were civilized, the nation yet would not be civil. Here lies man's social paradox—the whole is not equal to the sum of its parts; and this is the social problem that must be solved before wars shall end and enduring peace have benign sway over all the earth. The individual loves the plow-share, but the nation does not farm; the in-

dividual loves his pruning hook, but the nation has no orchard or garden. The nations do their work with swords and spears and lying tongues.

Men and nations everywhere increase in knowledge, and men may grow in grace; but in wisdom everywhere nations fall down as fools. They advance in all sciences and all arts but one; and we call it progress and boast of achievement. But lacking a knowledge of the honest and peaceable art of living, this boasted progress of the world is but the fine road to dissolution. Who built the pyramids of Egypt? We do not know who nor how. But we do know that ignorance of this fundamental wisdom is the teeming mother of misery and war and waste, the swift helpmeet of destruction and death. So runs the course of human history.

The boasted Kultur of Germany and the Kaiser, who madly himself always took precedence of God—what availed it for the life of Germany or the betterment of the world? Surely it was knowledge, but it was not wisdom. What avail now her high seats of learning which were as Meccas for ambitious students the world over? She held no art or science of value but as a means to rob and strangle the freedom of her neighbors and make her mistress of the world. Her way was the Gentile way. She now knows that God takes precedence of the Kaiser, and that the wages of sin is death. Fortunately for the world she is receiving the honest wages of her sin. A broken and dismembered empire—her cruel millions of a year ago may still have about them medals struck upon the sinking of the Lusitania; her haughty leaders of a year ago may remember that they would have no peace but a German peace; but they are now suppliants begging us for food to keep them living in remembrance of their sin. Her ruthless master fled his throne, Gott-forsaken as a matter of course; he now saws wood and says nothing in fearful exile. In her ignorance, Germany went up against impregnable law; least of all nations had she learned the fine art of national living.

But this picture is not without a touch of pathos: I would love to think what Germany with the heart of Goethe and Schiller and Heine might have been for the happy life of the world.

England, on the other hand, lover of liberty and mother of self-governing peoples, lives on, an undivided empire; France, loving freedom and social justice among her brave people, desiring only her own, lives on a proud republic; while our own great commonwealth, honest and great and wise, fathers the possibility of a civilized world and leads the way to enduring peace. Turn for a moment to the fair face of our own beloved country—fair as Queen Esther to look upon; lover of liberty and self-determination and peace; bold and swift in righteous combat; preserver of civilization; generous of heart and friend of

every struggling, of every tolerable people. In her budding prime, America knows for herself and for the world the art of living as no other people ever knew it.

Without our America, what would the faltering nations have done last year? And what would the troubled world do now without the bountiful and guiding hand of America? I stand here in the sight of things and say that our fathers who made the Declaration of Independence and won the Revolution against what they called the tyranny of a German king on an English throne knew not what broad foundation they were laying nor for what ultimate purpose; but the Eye that sleeps not nor slumbers, He knew and made provident use of these "irresponsible tools of history."

And although I may not on election day cast my ballot with the majority of you, yet have I no sort of hesitation in saying that the President of these free States has a vision of world righteousness and peace, of the fine art of national living, such as never before informed and animated the head of a great and purposeful people. And so, as a genuine American, I am righteously proud of him in his righteous purpose to teach righteousness to the nations, to bring disorder and wars and their waste and misery to an end, to establish a just, constructive and enduring peace throughout the world—this strong-jawed American schoolteacher in France, to whom all the nations look up. Wilhelm was a savor of death unto death, a vessel unto dishonor; Wilson, embodiment of the American spirit, a savor of life unto life, a vessel unto honor, meet for the Master's service. I bid him Godspeed, therefore, in the right formation of a righteous League of Nations for the rehabilitation of this wasted earth, and the prevention of the destruction and misery and death incident upon social disorder and war.

I speak of social disorder. When we entered into this war, whatever our personal provocation, we entered with the altruistic purpose to make the world safe for democracy. This slogan roused our generous patriotism and woke a vibrant chord in the sentimental and humane heart of America. As the enemy of democracy, we saw only the increasing autocracy of the Central Powers. Our democratic armies made glad war upon brutal autocracy. The dangers of autocratic aggression vanished with the flight of the Kaiser and the signing of the armistice. That enemy of democracy bravely met and vanquished, the democratic peoples of the earth with joy celebrated their victory. But another danger looms large in Europe, and its mutterings are heard even in our own land. New born of disorder there lives and grows a monstrous thing more dangerous to democracy than autocracy ever was. Autocracy is dead, but Bolshevism threatening the world drops a stenching fly into the fragrant ointment pot of victory.

This gives the faithful pause, and makes us lift anew our eyes unto the everlasting hills whence cometh our strength. When we were looking for the increasing day of benign and orderly democracy the world over, we catch sight of the mad face of social chaos and the gloom of night. Better a thousand times the iron hand of autocracy than the madness of Bolshevism, for any form of stable government is better than none. Authority and order are essentials in all good government.

Accustomed to law and order and smiling peace for fifty years, most of us have accepted orderly government as a natural human thing. It never occurred to us that orderly government, this first step in the art of community living, is a most unnatural thing. Indeed, I know nothing more mysterious than this. The mystery of godliness may be great; but the mystery of individual godliness may not be compared with the mystery of a hundred millions of human beings living daily an efficient and peaceful organism. Let but authority fail in such an organism: it dissolves explosively into riotous units, and the units cry out, "Every man for himself and the devil take the foremost and the best." Destruction and devastation harry the land. The process is not long: the unchained ignorance of a day undoes the wisdom of a thousand years.

All government of whatever form, let it be autocratic, aristocratic, or democratic, lives by the bread of authority for the preservation of order. Without authority there can be no conception of a common weal. Human justice, welfare and progress are predicated upon stable government fixed in authority and preserving order to achieve any humane purpose.

In an autocracy, this authority is vested in and exercised by a single head: in a democracy, the authority is vested in the governed and exercised by the few. Founded upon the doctrine of equality of right and of obligation, democracy expresses its authority through the leadership of men whom it chooses for a purpose. Democracies express themselves as aristocracies; and in time of stress they approach autocracy in action. But such autocracy is temporary and exercised for the common good; the good, uncomplaining, are conscious of the necessity and the wisdom of it. Authority is maintained and order is preserved for the common good. When authority fails, order is gone and anarchy revels in social dissolution and the destruction of the common weal.

If autocracy is democracy gone to seed, Bolshevism is democracy gone mad. This madness now threatens the world—rampant or crouching, the world over, it denies all democracy, all leadership, all authority, all common right and obligation, all orderly government. It is social dissolution into helpless elements that have neither heart nor head to compass their own safety and peace, to achieve in a fair earth their

obscure desires. The Russia of the Czar was more tolerable than the Russia of Lenine and Trotsky; the Germany of Prussia was better for the world than the Germany which Karl Liebknecht and Rosa Luxemburg would have made.

The world, therefore, is not yet made "safe for democracy," and the work of the good who would teach men and nations the fine art of living is by no means done.

But some one may ask why I present considerations of this sort before a body of medical men—why not present them rather before an audience of laymen? I find no fault with your question, but I knew to begin with that my address would be out of line, because the times themselves are sadly out of joint and I am living in them. Without apology, therefore, I answer that first of all a physician must be a man! If you are only a doctor, you are a very small thing. But if you are a man first and a doctor also, I may then congratulate you upon your greatness. Fundamental considerations of living must concern all good men, all thoughtful men, all constructive men; all men especially who by reason of education and position are responsible for the character of the communities in which they live, and so for the temperament and complexion and peace and upward lift of the world. The physician first of all must be a man to whom nothing human is foreign; and, indeed, he has no right to be a physician at all, if within the sphere of his influence he is not abreast of the foremost in serious thought and wholesome action.

From these thoughts which range largely abroad, but which nevertheless seize hold of us as they grip all serious men, let us turn homeward to quieter things which should appeal to physicians first of all. Living in peace, let us labor helpfully our little while under our own blessed vine and fig tree. For it may be that, if we do not tithe mint and anise and cummin in forgetfulness of the weightier matters of the law, we sometimes, in our efforts to compass what we call a living, lose sight of fundamental things and fall short of the physician's finest art. Let us live and labor conscious always of the spirit of democracy.

For if democracy is the best form of government, that democracy only is best which is integrated out of the sanest and strongest elements. The execution of the Selective Service Law revealed to us an amazing burden of mental and physical adult unfitness. The crippling defects of children are made bare to us by examinations had in the public schools. For protection and perfection of itself, democracy does and must concern itself with the development and character of its kings. Democracy by right lays claim to the child and to the man. The making of sane and strong men, why is not that the first business and use of a medical man in a democratic community? For this vital work, his fitness is as the fitness of no other man.

I know that it is said that all just powers of government are derived from the consent of the governed. If it were true as to nations, it is not true as to men. The just powers of government have deeper and more wholesome foundation than that. In a democracy, the just powers of government are founded in the service that may be done. Even a king must be a king not for himself but for the service of his subjects. In a democracy, until our multitudes of "uncrowned kings" are developed to comprehend this bottom fact within themselves, the just powers of government are founded in the obligation which the greater man owes to the less for the development of the lesser man toward the level of the greater, for the safety of both the greater and the less. Even in times of peace, not less than in war, is there not a field of service wherein democracy has the moral right of draft over the physician because of the State's need of his peculiar fitness?

This same thought in time of war I declared to you in this place a year ago. I shall always be proud of the profession in North Carolina when I recall the agile unanimity with which, as one man, you rose to your feet in approval of it. Voluntarily you subjected your services to your country's need. Less acutely tragic are human needs in a time of peace than in time of war, but none the less tragic after all. May I not ask now your approval of this same principle in your every day living in a time of peace? It covers, I tell you, the doctor's best, his reasonable service, for North Carolina.

I am mindful of the unusual burden that has been uncomplainingly borne both by those who went with the armies and by those of us who remained and cared for the civilian population at home. I am mindful of the sacrifices made on either hand, a sacrifice too often all the way to death. The doctor who went with the colors learned more than the doctor who stayed at home. Of lonely sorrow and bitter anguish he saw more. In either case, I find the same heroic spirit and sense of human service.

Medicine and surgery grew lustily on the terrible experiences of camp and battlefield. Through this knowledge so bitterly gained, mankind is to be better served by the profession. Surgery especially, winning fresh laurels in old and new fields, learned to snatch from death the wounded, and is remaking mutilated remnants of men into renewed and useful life. It reclaims for living service men who in other days would have passed out, shattered bodies undone. Here medicine looks on not envious, but in glad wonderment, at the surgeon and the nurse; but turning from the surgeon's brilliant field, medicine confesses the weakness of drugs. The comparative futility of drug-giving gains new emphasis, not from the camps only, but from the pandemic of influenza, more destructive of life than battle, which searched for and found

its victims in every corner of the commonwealth. Even the laity must now know that there is more for the doctor to do than to give drugs and be therewith content.

The chief gain in the domain of medicine is in sanitation and the prevention of disease. What, then, can this Society and its membership do more for the healthy and happy living of our people? Very much, I am persuaded, by giving them the benefit of what medicine knew before and has since learned from the war. We can better direct their living and prevent disease; and an ounce of prevention is worth a ton of cure, when you cannot effect the cure.

I am not "a therapeutic nihilist," and I know that there will always be illness calling for the mere physician and giver of drugs; and I know that, as yet, the folks just will be drugged. I know, too, despite our best endeavor, men will sometimes fall into conditions wherein nothing will at all avail but the giving of drugs and the tender ministration of a gentle hand. That they that are sick have need of a physician is true; but they that are well have need of a better physician—of one who knows and will teach them wherever he goes so much of health that they may avoid disease. It is the best physician's business to exemplify and to teach the fine art of living every day of his life.

So much of disease lies in the domain of the preventable that it is a reproach against the profession that there is so much illness as there is. I would love to think of every doctor as a peripatetic apostle of health, a kindly sentinel against disregard or infraction of natural law,—as one who prevents wreckage and is greater than a simple salvager of waste. I would love to hear him tell how much the health of his community has improved under his influence, boasting of the health of it and the happiness of his people, and rejoicing righteously in the happiness of his own helpful heart. But if he told me rather of his success as a practitioner of medicine and measured his success by the fatness of his bank account, a sort of sadness would come over me. For that would be unprofessional: it would be rank commercialism, the poor unconscious of his noblest heritage.

In other words, the first consideration of a man in a democracy should be the welfare of his fellows: the first consideration of a medical man in a democracy should be the public health. This is the field of his greatest usefulness. He that is profitable mainly to himself may be, in the best scheme of living, a very useless man. Perhaps that is the best, if not the worst, that could be said of him. I am persuaded that this view is becoming more and more the view of the intelligent laity, and it would be a sad reproach if less were said for the profession in North Carolina.

To the school teachers throughout the State the profession and the public is indebted for valuable service in public health work. How much we are indebted to the pulpit, seeing the constancy of its opportunity, I do not know. If these good gentlemen of the cloth have too much rested their vision on eventual golden streets, the war has shown them, doubtless, more immediate human needs. To the newspaper men in North Carolina, I make my profoundest acknowledgment of the splendid service which they are rendering in public health propaganda. For this public service (albeit they gorge themselves with amazing patent medicine advertisements to enhance their living), I *think* in these aqueous times to their health: "May they live long and prosper."

With the return of so many physicians from the camps and the battlefronts, men trained in sanitation and local prevention of contagious and infectious diseases, and of soldier boys who of necessity have learned the value of clean and careful living, it is an opportune time to move forward effectively in preventive medicine. If we could convert into popular wisdom the knowledge now among us, the cheeks of this good State would blossom like a rose. We could save in a little while from death in North Carolina more of life than the war and the epidemic took from us. In every community, returning from the army, are to be found men of both races. They are robust, living epistles of lawful living. They would make a broader highway for public health endeavors than we have heretofore traveled. The wisdom of the hour leads the profession this way.

What the war has taught us touching the moral side of a young man's life, what we have learned of mental conditions and bodily disease, it now rests as a democratic obligation upon medical men to put before the public for the sanity and strength of the people. In this benign democracy we have our rights, to be sure; but we have our duties as well. They that have learned best the fine art of living are the happiest. They find happiness not in the selfish assertion of individual rights, not in selfish living, but in the glad discharge of serviceable duty to their fellows. In a time of peace not less than in war, may every member of this Society stand with happy pride to the full measure of his public obligation and our present opportunity.

Dr. J. P. Munroe, Charlotte: I move that the address of our President, which we have just heard, be obtained by the Committee on Publication, and a copy be sent to the several daily papers of North Carolina, and a copy to the President of the United States.

Motion amended, that a copy of the President's address be given to the Associated Press and heralded to the world. This amendment was accepted, and the motion was seconded and passed.

ANNOUNCEMENTS

Dr. L. B. McBrayer: I trust that the gentlemen will use their programs for the purposes for which a program is intended.

You will notice in the program announcement of the various times that the various sessions begin. The President has notified you that, barring the session just coming to a close, all would begin at the hour mentioned in the program. If any of you have a paper and desire to present it you had better be present and on time.

The Pinehurst Jockey Club, through Mr. Tufts, invites you to attend the races to-morrow afternoon at three o'clock. I am reliably informed that the President has no objection to your going. Betting will be allowed, but the limit has been placed at $1,000,000 and nobody is expected to exceed the limit. Admission to the races will be by badge, or by the payment of the usual fee. Mr. Tufts has invited all the members and guests of this Society to be guests of the Pinehurst Jockey Club, but unless he pays the fee, no member will be admitted unless he wears his badge. The badges do not cost anything, and may be obtained at the registration desk in the corridor of the hotel near the front door. You will be expected to register before you get the badge.

I would like to say that perhaps never in the history of the Society have we had so many members in good standing at the time of meeting as we have to-day. One thing good standing means is that you have paid your dues for 1919. There are a few, 500 I would say, or maybe a little more, who have not paid their dues for 1919 as yet, and you will also be able to do this at the registration desk.

The ladies do not have to pay any dues. Their faces will take them anywhere, even to Heaven, but they are requested to register at the registration desk. As you will notice in the program, the Ladies' Entertainment Committee has a good many things they want to show the visiting ladies and do for them, and only by registration can they find out who is here.

I will say for the Ladies' Entertainment Committee that immediately after these announcements they will be out in the parlors of the hotel, and they would like to meet all the ladies whom they have not had the pleasure of meeting as yet.

I am going to take the liberty of saying for them that immediately after lunch they have provided an automobile ride to the Sanatorium and back by way of Southern Pines, and I understand that there will be something to eat, and the ladies of the entertainment committee request the company of all the ladies in attendance here. There will

be other announcements by the Ladies' Entertainment Committee when they have met you all.

I once saw a doctor spit on the floor, not here at Pinehurst, of course, because that doctor is dead and I do not think there are any more living who would do that. If any of you have anything in your mouths that you need to get out you will find just outside the door some pocket sputum cups that you can drop into your pockets just like that (exhibiting one) and carry with you anywhere you go. If you go to the Sanatorium you will find an incinerator where it will be burned, otherwise you can dispose of it when you are off the grounds.

It is requested that all the men and all the ladies write their names in the little place provided for that purpose in their badges, so that we will begin to get familiar with names. Ladies are perfectly safe in not waiting for an introduction to the doctors who are here, because if a woman is safe anywhere in this world it is in the hands of a physician.

Some of you perhaps have not thought that Samarcand Manor is situated near here. The Manor is one of the new institutions of the State and, as you all know, has been brought into existence to salvage wayward girls traveling the road to destruction. We are hoping that we shall be able to make up some parties to visit that place. We are expecting Dr. McDonald, of Jackson Springs, to have charge of them. I am not sure whether he is here yet.

The Farm-Life School is one of the very interesting places around here, as is also the James McConnell Memorial Hospital connected therewith. You will find in the program on pages 5 and 6 the names of the doctors who will have time to drive you over there between sessions. Dr. Mudgett recently suffered a wreck of his automobile by a soldier patient temporarily demented, but he will be glad to carry over parties who desire to go.

The Sanatorium is just as far on the other side of the Seaboard Railroad as is Pinehurst on this side. All who desire are invited to visit the Sanatorium, and Dr. McCain, Dr. Spruill, and the others mentioned in the program are the committee to chaperon you over there.

The Section on Surgery, which will convene soon, will be in the parlors just off the hall, and the Section on Medicine and the other sections will be held in this room immediately.

SCIENTIFIC PAPERS

SECTION ON PRACTICE OF MEDICINE

SECTION ON ANATOMY, MATERIA MEDICA AND THERAPEUTICS

SECTION ON SURGERY

SECTION ON GYNECOLOGY

SECTION ON EYE, EAR, NOSE AND THROAT

SECTION ON PEDIATRICS

SECTION ON PATHOLOGY, PHYSIOLOGY, BACTERIOLOGY AND CHEMISTRY

SECTION ON OBSTETRICS

SECTION ON PUBLIC HEALTH AND EDUCATION

PRACTICE OF MEDICINE
ANATOMY, MATERIA MEDICA AND THERAPEUTICS

The following message was read by the Chairman, Dr. E. J. Wood:

"Dr. William deB. Mac Nider detained at home by sickness, sends regards and best wishes."

A CONSIDERATION OF THE ESSENTIAL SUBSTANCES IN FOOD

Edward J. Wood, M.D., Wilmington, N. C.

Until recently we felt that if we were giving to the individual the requisite number of calories estimated on the individual's weight, and that if the proportions of carbohydrate, protein, and fat were fairly well balanced, our duty was well done, and done even in a scientific manner.

It was not until Eijkman in 1897 made the first suggestion of a more obscure fault that the attention of students of nutrition was directed to the "essential substances." Eijkman's observations were made on beriberi, which, as is well known, is a deficiency disease brought about by eating polished rice or, in other words and more accurately, rice deprived of the germ.

In 1911 Casimir Funk brought forth the vitamin hypothesis, which at once attracted attention and which served splendidly as a theoretical basis for many of the deficiency problems which were then being studied. Funk regarded the solution of the etiology of beriberi, pellagra, scurvy, and rickets in an essential substance specific in each disease.

Recently the brilliant work of E. V. McCollum and his coworkers has shed much light on the subject and has resulted in the complete revisal of most of our ideas of nutrition. While there have been many who do not accept all his views, still his work is epoch-making and his teachings should be in the hands of every physician.

McCollum objected to the term vitamin because it was, chemically speaking, misleading and inaccurate. He and his coworkers found two essential substances which they have called fat-soluble A and water-soluble B. Fat-soluble A is found chiefly in butter fat, egg yolk, and in the leaf of the vegetables, as spinach, cabbage, collards, and turnips.

This substance is very essential and without it the result in the extreme degree would be a disease, little known in man except in Japan, but experimentally in the lower animals well known, which is called xerophthalmia. I use the term "in the extreme degree" advisedly, for there are many nutritional disturbances which are due to a lack which falls far short of being sufficient to produce xerophthalmia. These conditions will be referred to later.

Water-soluble B is found in many foods. Its chief source is the germ of cereal grains. It is rice deprived of germ which is responsible for beriberi. This disease represents the extreme lack of the essential substance. It remains to be seen if there are not states of nutrition which fall short of being beriberi and yet present definite disease pictures and which can be readily attributed to a partial deficiency in this water-soluble B. In recent years we have learned that deficiency in other grains will produce beriberi when that deficiency is not made up by a mixed diet increasing the sources of water-soluble B. This was illustrated in an outbreak of beriberi in Newfoundland. The cause of the trouble was beautiful patent flour. In the beautifying process all the germ was milled out, because it is this portion of the grain which causes the dinginess in the finished product, and this is objectionable to our modern tastes. I have seen beriberi in North Carolina caused in much the same way, though the deficient grain was probably corn. Owing to the fact that the germ of corn deteriorates very soon because of its high fat content, and as the rancid product causes great financial loss, the method of "degerminating" was introduced into commercial milling. The germ removed with the bran is sold separately and has a great name among dairymen as a milk maker. The part, therefore, which man most needs for protection against disease, as well as for growth and development, is discarded and goes to the cattle. It has been shown that phosphoric acid (P_2O_5) is a very reliable indicator of this essential substance, and it was so used in the beriberi work in the Philippines. In corn work Capt. George F. Catlett found for me that the commercial corn meal was very low in this indicator and that the amount decreased according to the degree of milling, while the germ itself contained about six times the amount of the product which we are in the habit of eating at our tables daily. We also used sulphur as an indicator, but as the results were found to be parallel it was abandoned and we depended on the phosphorus pentoxide. It should be clearly stated that this phosphorus compound does not contain any virtue as an essential substance, but that its presence indicates the richness in the essential because the two come from the same portion of the grain.

Using highly milled corn we were able to produce polyneuritis gallinarum at will. It might be well to remind you that this condition in fowl is the analogue of beriberi in man, and for this reason the fowl is used for extensive experimentation along this line. Our work was done chiefly with pigeons. It was found that while deficient corn meal would produce the disease, the animal could be cured in a few hours by the administration of an alcoholic extract of the corn germ, even though the paralysis was so complete that the extract had to be given with a tube and massaged out of the paralyzed crop. The result was amazing in its completeness and rapidity. This was only a duplication of the experimental work done with polished rice and rice polish, but it showed the universality of the law. One of our most interesting observations was that young pigeons became neuritic in much less time than the mature bird. We found, too, that a gradual withdrawal of the essential substance was better borne than the sudden withdrawal. A bird given a diet which was only partially deficient manifested symptoms which were not polyneuritic, and this decrease could be carried to a considerable extent, if done gradually, without producing polyneuritis. This may have a bearing on the susceptibility of the young to deficiency conditions.

One of the most vital things in a study of this type of deficiency is the part played by the presence of strong alkalies in the cooking of cereal foods. It had already been found in the Philippines that cooking rice with soda rendered it more deficient. We cooked corn meal with bicarbonate of soda and produced polyneuritis much sooner than when it was left out. The bicarbonate is decomposed into sodium carbonate—a very harmful substance in food—and carbon dioxide. This latter is the thing which produces rising in the biscuits of this section. In many instances a certain amount of sour milk is added to offset the injuriousness of the alkali, but the amount is estimated purely by guesswork and is never calculated on the varying degree of sourness of the milk. Again, in the use of baking powder we see the same crude effort to neutralize the alkali by the addition of acid sodium phosphate, but it would appear essential to make an assay of each batch of soda and acid phosphate to determine the amount needed to balance. Of course, this cannot be done commercially. While the commercial product is much more accurate than the crude home neutralization, still there must remain many chances for error. It remains to be proven whether or not a slight degree of alkalinity is enough to produce any serious change in the water-soluble B. Until we know more regarding this danger it is far better to advise our people to use yeast in raising bread; never to use bicarbonate of soda in cooking at all; to learn the method of making

Maryland biscuit or, as we say at home, beaten biscuit. We can well afford to go back to the old hoecake and cornpone which our great grandparents baked in the ashes and in which no rising agent was used. If to this is added the resumption of home-ground corn and wheat, in which type of milling the grains are not deprived of any vital element, I believe the end of many modern ills is in clear sight.

My own observation leads me to the conclusion that pellagra is much more apt to be a deficiency of this water-soluble B than a general deficiency brought about by an unbalanced diet. I have seen pellagra entirely disappear in a few days on a diet of corn germ, and I believe that highly milled corn and wheat with alkaline rising agents added will produce the disease promptly. The deficiency in this case is not so complete as that necessary to produce beriberi, but if the diet was solely these articles without any offset in other things, or, in other words, if the deficiency in water-soluble B was complete, the disease would be beriberi and not pellagra. I appreciate that many will take exception to this view, and that one of the chief arguments will be that an individual drinking enough milk (the source of supply of fat-soluble A) will never develop pellagra. I can only answer by saying that I have cured a chicken suffering the most extreme degree of polyneuritis gallinarum by administering milk, and that the response was as prompt as when the extract of the grain germ was given. It would appear, then, by this, that one type of deficiency may be prevented or cured by supplying the other essentials. Whether this is true, or whether I have read my results incorrectly, remains to be seen, but at this time I am disposed to think that an abundant supply of fresh milk will prevent both pellagra and beriberi.

Above I said that the sources of fat-soluble A were milk, the yolk of eggs, and the leaf of vegetables. While the extreme degree of a lack of these sources may be partially made up by a few other sources, as the glandular organs of the beef or sheep, still these three sources must be regarded as the most important. When there is no fat-soluble A in the diet the extreme penalty is the condition know as xerophthalmia. I believe that there are many nutritional states which represent all grades of this fault. There are many proofs of the harmfulness of a lack of this essential. I found in my own guinea pigs failure to develop, lack of proper tone, abortions, failure to propagate, and early succumbing to any trivial disorder. The diet was carefully planned, and consisted of cereal grains and fresh vegetables, to which were added raw potato and carrots. When hay was added the improvement was remarkable. The succulent green vegetable leaves contained too much water, with a consequent lack of concentration of the elements, necessitating a larger

amount of the food to secure the needed amount of fat-soluble A than the digestive apparatus could accommodate. Ducks fed on grain and meat did badly until dry alfalfa leaf was added, after which they produced a remarkable number of fertile eggs.

In many sections our people are not drinking milk or eating butter. I made this statement here last year, and was taken to task by a number of my friends who disagreed. It may be that it is not a general rule, but usually it can be said that free range, ticks, and deficiency diseases go hand in hand. I am convinced that the people who do not consume milk are suffering the greatest economic handicap, and that the greatest thing life insurance companies can do to lower their rates in eastern North Carolina is to undertake a campaign of milk education. I find hundreds of people each year who say milk and cream are poison to them, or that they simply cannot get it for any price. These people have, then, only two other sources of fat-soluble A to depend upon: the leaf of vegetables and eggs. From experience I think I can safely say they will not eat enough eggs to meet the need. Then we have left only the despised collards and other greens. It was a great shock to me to learn this fact. I had always regarded this class of food as a pure waste of space in the stomach of half-fed people. A primitive instinct seems to have taught these people the importance of the leaf vegetables, and we doctors must change our opinion of this source of food.

Again, we must consider the harmfulness of the use of bicarbonate of soda in cooking, for it is a common practice, especially among the mill population (Voegtlin), to do this in order to insure more rapid cooking and a tenderer food. I believe that it is as injurious as is the same practice on the cereal foods.

There are many points of chemical importance in cookery which must be made plain before this food problem can be solved. I have mentioned only one. Another possible one is suggested by the observation of Hess, who found that orange juice boiled with water did not lose any antiscorbutic property but that orange juice boiled with oil lost all antiscorbutic virtue. Can this same thing be applied to the cooking of many classes of food in grease? Surely the use of fat in cooking among the poorer classes must be a source of some danger which is yet to be demonstrated.

In recent years I have been deeply impressed with the ever increasing number of neurasthenics and psychasthenics from the country who consult me. Their symptoms are legion, and the organic basis is absent except focal infections to be found in badly neglected teeth and gums. Being interested in pellagra, and because these people present in many instances so many of the mental and nervous symptoms common to that

disease, have been studying their diets. It is rare indeed among this class to find those who are eating the proper food. As a rule there is a very definite lack of fat-soluble A and not infrequently water-soluble B also. On more than one occasion I have wondered if the mouth condition did not really begin as a low-grade scurvy, which, added to general neglect, resulted in severe mouth infection, and thereby a vicious circle was instituted. There is certainly a deficiency condition among these people which can be more helped by good food than all the glycerophosphates and allied popular remedies which our profession find so easy to dispense, thereby saving serious investigation of the cause. There is no more fertile field for valiant uplift on earth than this one study, and already we know enough to give us texts to last several years if we will but use our opportunity. We feed our cattle more or less scientifically, and we would feed our children likewise if they were slaves and the output of work was greatly influenced by it, but we feed our children how? No effort of the physician today spent in investigating the diet of his neurotic patient will be wasted. It is in reality a never-ending field for delightful surprises. More can be accomplished by one hour of patient investigation of not what is on the patient's table but what the patient actually ate than by all the high-frequency apparatus sold during the past decade. Can it not be said that the backbone of Wier Mitchell's rest cure for neurasthenia was diet? What did he give his patients? Certainly he gave them an abundant supply of fat-soluble A and there was no lack of water-soluble B, though the distinguished neurologist never heard these names and probably never thought there was any very definite reason for their use except that these foods proved to be good fatteners.

There are hundreds of people in North Carolina today waiting for us to go home and cure them of these neurotic horrors. If we meet the problem squarely by declaring at the start that this group of maladies can only be cured by the proper food and the aid of a good dentist the fight is already half won. In spite of primitive instincts, people, like the lower animals, will not naturally select the right food if directed by natural desire alone. This is true of the sanest people, but added to this are many vicarious eaters: biscuit eaters, bread and meat eaters, so-called "vegetarians," not to mention the various fad eaters with whom we all are familiar.

Surely we can soon say, "Tell me what he eats and I will tell you what manner of man he is."

DISCUSSION

Dr. W. S. Rankin, Raleigh: I was asked only a few minutes ago by the Chairman to discuss the interesting paper to which you have just

listened. In listening to this paper, my interest has been as much human as scientific. I have been thinking, while listening to Dr. Wood, of the likeness in temperament of father and son. Just as Dr. Edward J. Wood, the son, is today looking into the future and preparing his profession to see clearly and to prepare for one of the big problems of medicine, namely, diseases of nutrition, so the father, Dr. Thomas A. Wood, spent much of his time in preparing the profession of twenty or twenty-five years ago for the great field of medicine which we are just beginning to cultivate profitably, namely, the field of preventive medicine. The Woods are prophetic in their type of mind. They are natural leaders. The Section is very fortunate in having this type of man presiding over it.

Dr. Wood points out in his paper that the food problem is one of the fundamental problems; that a man is what he eats. This has always been so, for in the very beginning we are told that man was created out of dust, and returns to dust. From the dust, the soil, nourishment is drawn into the plant, up through the roots, and is made into grain which is food for animals, and is in this way transformed again into flesh and ultimately taken into the human economy and converted into blood and bone and brain.

We little realize as yet the scientific relation between food and the physical and psychical man that it makes, but we are beginning to see the importance of the food problem. Dr. Wood calls attention to the food problem as related to childhood, and to the interesting first five-year period of life in which children have such difficulty in adjusting themselves to diet. One-third of the deaths in North Carolina occur within the first five-year period and are largely the result of maladjustment of the child to food.

Another practical point that the Chairman brings out is the value of milk as a food. He calls attention to the fact that milk, on account of its being the food prepared by nature for the child, contains all the essential elements needed in the animal economy; therefore, when dealing with food diseases or with suspected food diseases, one of the first natural remedies to be thought of is this one—milk, which contains all the essential elements needed in the process of construction and repair.

It is significant that Johns Hopkins University, in establishing their school of preventive medicine, have selected Dr. E. V. McCollum as professor of nutrition. The study of foods is going to renew our interest in chemistry, require us to review our chemistry, and give us practical opportunities for applying the science of chemistry. I am told by my friend, Dr. John A. Ferrell, who is at present taking a course under Dr. McCollum, that he is having to review most of his chemistry.

My first interest in the food problem, as with most of us, was in connection with pellagra. When I realized that in addition to the 4,000 or 5,000 pellagrins in North Carolina, that is, persons with fully developed symptoms of pellagra, there were perhaps 100,000 incipient pellagrins, persons tremendously under the physical 100 per cent., say down to 40, 50 or 60 per cent., but not sufficiently diseased to develop the three or four characteristic surface markings of the disease, I got a new conception of the food problem, and in this connection I have been wondering if we are not going to find out some day that too much proteid, in its effect on the heart and blood vessels and the alimentary organs of the body, in its relation to wear and tear, is not as important, physiologically speaking, as too little proteid. And then, if we have discovered diseases that are due to too little proteid instead of too much proteid, how long will it be before we find other food diseases due to too little fat and too much fat, too little sugar and too much sugar?

In this connection, we are just beginning to sense the size and importance of this problem, and we cannot too strongly encourage the medical profession to make every effort to keep fully abreast of this class of discoveries, so that as time goes on and as this problem assumes its true proportions, a large percentage of the profession will not feel that they have been outdistanced and be discouraged in attempting to deal with nutritional diseases.

Major William Allan, Charlotte: Nothing is more important than the subject of nutrition, and the thing I like about this paper is the careful work it presents through experimental methods. Dr. Wood has always given us a lead here in North Carolina in working out our medical problems by attacking them from the experimental standpoint. Milk, aside from its caloric value, has always been our standby in all sorts of sickness, and he brings us a rational explanation of its value. The soda biscuit of the South is an unmixed dietary evil, and this explantation of its baneful effects should be a great help in getting rid of it.

Dr. P. B. Loftin, Beaufort: It has not been my privilege to be with this Society in some time. Hemorrhagic fever got hold of me twenty years ago, and it came very near putting me out of commission. I came here as a student this year. I am very much interested in the food problem because it is the source of protection for our babies. The matter of what we eat has a great deal to do with our lives, but one thing that has about as much to do with it is the way that we eat it.

There is one problem for the Medical Society to take hold of—and whatever the Medical Society takes hold of it carries through. We have to do our work and adjust it to the conditions of the place that we do

it in. There is in a great many places a very great prejudice against the state stock laws; now, we say we have what is known as the open range and, absolutely, I go to people sometimes and they say "Doctor, try milk," and when I say to them that I would rather give a typhoid patient of mine a piece of broiled beefsteak than milk, they look at me in utter astonishment. We are making a tremendous effort against typhoid, but until we get the stock law to prohibit the running at large of the cattle that produce our milk we are going to have some deaths from typhoid, and until we teach the people to have the very best of milk and how to EAT it, we are going to have constipation. Milk, the one food that contains every element in the human body, is the only food that is fit for a baby. It is the one food that is not fit for about one-half of the men and women because they are too lazy to eat it. They drink it, and until we learn to eat it it will not be digested, clabber and buttermilk excepted. A baby has to work his jaw, and God gives him a great secretion and he puts those glands to work that secrete saliva and he mixes the milk thoroughly with the secretion of the mouth, which is the first process of digestion.

We must teach people to eat instead of drink sweet milk before it becomes the food that will take the great stand that we want it to take.

Dr. Wood, closing the discussion: I want to thank the gentlemen for the discussion, and I want to take the liberty of suggesting a little book by McCollum on Nutrition. It costs $1.50 and has probably 250 pages, and without doubt it is the most valuable book I own, and I would give all my library for it. I think every one would do well to invest $1.50 in it. McCollum says in that book that he believes that the relation of diet to tuberculosis is exactly the same as the relation of diet to pellagra; that tuberculosis gets its hold through malnutrition brought about by deficient diet, and that there will be no tuberculosis if nutrition is brought up to the proper point.

Dr. Wood, Chairman, (introducing Dr. C. M. Byrnes): It is a very high privilege to have with us one of our distinguished sons, a man who went to Baltimore and who, like all North Carolinians, adds lustre to our State away from home. Dr. C. M. Brynes will speak on "Cephalic Pain: Differential Diagnosis and Treatment." We are glad to have Dr. Brynes with us.

THE DIAGNOSIS AND TREATMENT OF CERTAIN TYPES OF CEPHALIC PAIN*

CHARLES METCALFE BYRNES, M.D.
Associate in Clinical Neurology, The Johns Hopkins University.

Mr. Chairman, Members of the Medical Society of the State of North Carolina, Ladies and Gentlemen:

Nearly twenty years ago, through the wise counsel of one of your distinguished countrymen, a man of rare attainments, an inspiring teacher, and a stimulating personality, Dr. C. Alphonzo Smith, I was directed to the University of North Carolina as a suitable place to acquire the essential elements of a useful life. He chose wisely, for I feel that I owe to him, to the University, and to my fellow students much of the good that has come to me. No apology need be made, then, for this bit of personal history, nor will you question my sincerity when I say that it gives me real happiness to be with you today.

I have chosen to talk to you about painful affections of the head because they contribute largely to the ills which you are called upon to treat; they are frequently misunderstood; and they are often symptomatic of a more remote and sometimes obscure disorder. If you will take the time to review your Practice of Medicine you will find that there are at least sixty-six separate and distinct diseases in which headache is mentioned as an initial symptom, or else forms a prominent feature of the affection. It is important, therefore, in the various types of cephalic pain, that searching studies be made to determine its cause and significance. Such studies should not be confined to clinical facts alone, for much is to be derived from a knowledge of the anatomy of the trigeminal and upper cervical nerves. I shall, however, confine myself to a clinical discussion of the more common type of head pains under the three main divisions of headache, neuritis, and neuralgia.

Very few of us have not, at one time or another, experienced that particular kind of head pain commonly known as headache; and yet both the laity and profession sometimes use the word indiscriminately to include the ill-defined head sensations described by the neurotic as a sense of fullness, pressure, constriction, or emptiness, rather than real pain. It has accordingly been suggested that a distinction be made between true and false headache, but such a distinction seems unnecessary if actual pain be regarded as the essential feature of every headache. Difficulty is sometimes experienced in determining, from a hurried inquiry, whether or not one is suffering real pain; and it is

*Read by invitation before The Medical Society of the State of North Carolina at its meeting in Pinehurst, April 15, 1919.

therefore wise to give the patient ample time in which to relate his symptoms. Patience, then, in securing the history not only facilitates the differential diagnosis, but may furnish valuable information as to the presence or absence of an associated neurosis.

The character of the headache, its duration, location, and intensity are sometimes of diagnostic value. The pain may be moderate or severe, continuous, intermittent, or periodic, circumscribed or diffuse, and nocturnal or diurnal.

Enumeration of the various etiologic factors and the several disorders with which headache is associated is unnecessary; but it is well, nevertheless, to train one's self to think in an orderly manner of the more important conditions in which headache may be a prominent symptom. My custom has been to think first of local disease in or about the head, face, and neck. A search is then made for sources of infection in other parts of the body, and for evidences of endogenous or exogenous intoxication. The cardio-vascular, renal, gastrointestinal, metabolic, and blood conditions must also be investigated. Thoracic, abdominal, and pelvic examination may sometimes reveal the origin of a so-called reflex visceral head-pain or topalgia. Inquiry should also be made as to the use of drugs, alcohol, and tobacco. Now that lumbar puncture has become generally used as an aid to diagnosis, it is well to remember that the puncture is occasionally followed by occipital headache of several days' duration. Only after a complete history and examination, then, is one warranted in concluding that the affection may be purely of psychogenic origin.

There are, however, two types of cephalic pain which are generally recognized as definite clinical entities. Migraine and nodular or rheumatic headache are, thus, two instances in which "headache" may properly be referred to as a disease, although the pain is, of course, symptomatic.

Migraine, in its classical form, offers little diagnostic difficulty. A family history of the affection, the periodicity of the attack, its onset usually during adolescence, its unilateral location in the beginning, and the accompanying visual, gastric, and vasomotor disturbances, constitute a more or less characteristic clinical picture. Occasionally, there may be localizing sensory or motor disorders, marked by transient parasthesia, paralysis, or speech disturbances. It is not uncommon, however, to find that typical migraine is incorrectly diagnosticated as "neuralgic headache"; although the diffuseness and the continuous throbbing character of the pain should, alone, serve to differentiate the affection from a true neuralgia. A diagnosis is not, however, always so

readily made; for there is an atypical or migranoid type of sick headache in which many of the classical symptoms are wanting, and it is this type in which diagnostic and therapeutic errors are most commonly made. They do not in any way resemble neuralgia, and yet I know of several instances in which these irregular cases have been subjected to the various surgical measures resorted to in the treatment of genuine trigeminal pain!

Treatment of the disease is often difficult, and when once the attack is fully developed, there is little that can be done. Proper management of the patient during the interval between attacks offers some assurance of reducing the number, intensity, and duration of the paroxysms. Whatever the type of the affection, it is rare not to find an associated neurosis, and whether the neurosis be regarded as a cause or an effect, a therapy which does not include it is rarely beneficial. Various dietetic measures, gastric lavage, active purgation, internal hydrotherapy, and extensive medication have been recommended with variable degrees of disappointment. The attack may sometimes be aborted, if rest, isolation, and suitable drugs are prescribed at the very beginning. Phenacetin, caffeine, aspirin, cannabis indica, and the bromides are thought to be particularly effective, and a full "rest cure" with appropriate psychotherapy and internal medication may well be worth a trial.

The so-called nodular, rheumatic, or induration headache, first studied by Swedish clinicians, is said to be a rare affection. It is only within recent years, however, that the subject has occupied the attention of English writers; and Playfair's translation of Auerbach's monograph, "Headache," gives an excellent description of the disorder. The affection seems to have been little recognized in this country and, except for the writings of Yawger, is seldom mentioned in American literature, but it is difficult to recognize an unfamiliar condition.

The diagnosis is, in typical cases, easy. The disorder is said to be more common in women than in men, and is characterized by a dull, aching, continuous pain usually in the nape of the neck, occiput, or temples. The suffering varies in intensity, and is, at times, excruciating. It is said to be affected by barometric conditions and to show nocturnal exacerbations.

Exposure has been mentioned as an etiological factor, but the immediate cause is attributed to the formation of fibrous nodules within the substance of the muscles of the neck and the cranial aponeurosis. The nodules vary in size from two to ten millimeters and are commonly present at the border of the sterno-mastoid and within the posterior muscle of the neck. The nodules are easily palpable, extremely sensitive,

and may, at times, be visible in the radiograph. Firm pressure over a nodule almost invariably reproduces the characteristic cephalic pain. Nausea and vomiting are, as a rule, absent, and heredity is of little importance. Nevertheless, the condition has not infrequently been mistaken for migraine in spite of the continuous nature of the pain, the absence of periodicity, and the infrequency of the affection before the fourth or fifth decade. For a more detailed description of the disease the writings of Auerbach, Yawger, and Edinger may be consulted.

The prognosis for recovery is generally good, for, upon the adoption of suitable treatment, the vast majority of cases are completely relieved. I recall the case of a railroad engineer who had suffered from this type of headache for six years, and who had resorted to the use of many coal-tar preparation and various other harmful as well as useless drugs without relief. The history of exposure, the character of the pain, its chronicity, the unmistakable presence of the painful nodules, and their characteristic distribution served to establish the diagnosis.

The most effective treatment consists of massage, baking, and the use of salicylates. Massage is, at first, extremely painful, and the earlier treatments may even aggravate the symptoms. This should not discourage the patient or the physician, for, if persisted in, the nodules finally disappear, and complete relief may be reasonably promised. The treatments should, in the beginning, be cautiously administered and of not more than five or ten minutes' duration. Later, they are gradually increased to one-half hour or more, and at the same time more vigorously practiced.

Syphilis as a cause of headache is of common occurrence, and while the type of pain possesses few characteristics which enable one to arrive at a diagnosis from that symptom alone, the available laboratory tests for the detection of syphilis make an error in diagnosis one of negligence rather than of ignorance. The diffuse nature of the pain, its localization in the frontal, temporal, or occipital region, and the nocturnal exacerbations make an examination by the Wassermann test desirable should it not be included in every routine clinical and laboratory study.

Mott is of the opinion that the central nervous system may be involved during any stage of syphilitic infection; and recent studies by Fildes, Parnell, and Maitland have added to the increasing evidence that it is not infrequently involved early in the infection although there may be no symptoms of a nervous disorder. Headache, however, is not necessarily an indication that the central nervous system is directly implicated; but, since a fixation test in the blood alone furnishes little information as to the condition of the spinal fluid, it is imperative, in all

cases of suspected luetic headache, as well as in all cases of suspected syphilis, that both the blood and spinal fluid be examined. The spinal fluid study should not be confined to the Wassermann test, for a negative reaction is sometimes obtained in both the blood and spinal fluid when there is every reason to suspect the presence of syphilis. The cell count, globulin content, and gold chloride test should also form a part of every spinal fluid examination.

The laboratory is not, however, infallible, and it is well to entertain a patient indulgence for those who taught the older methods of accurate clinical observation. A fourth instance in which the two methods of examination have furnished contradictory evidence has been recently added to my records. The patient, female, single, 37 years of age, was referred to me because of headache and "peculiar pupillary reactions." Examination revealed the typical Argyll-Robertson pupil, lost knee-jerk upon the right, greatly diminished knee-jerk upon the left, and complete absence of both Achilles jerks. There was no marked ataxia, but unsteadiness when standing with the feet together and eyes closed. A history of syphilitic infection was not obtained, and there was no evidence of a primary lesion. The laboratory examination was as follows: serum Wassermann, 0. Spinal fluid: pressure 110, cells 7, globulin 44, Wassermann, 0. In spite of the laboratory report and the fact that the patient is said to be a respectable single woman, a clinical diagnosis of early syphilitic tabes dorsalis appeared to be unquestionable. My belief in the correctness of this view was so fixed that it was finally decided to make my suspicions known to the patient. She finally admitted numerous "exposures," and the probability of an early infection, although unaware of a primary lesion. Antiluetic treatment improved her general condition and relieved the headache entirely. It may not be unwise, then, in the syphilitic type of headache, although unsupported by the laboratory study, to make a therapeutic test when the history and clinical symptoms are sufficiently convincing.

The headache associated with increase of intracranial pressure from cerebral tumor, abscess, or meningitis, although not distinctive, may, at times, exhibit more or less characteristic features. The pain usually begins as a dull ache in the frontal or occipital region and is often regarded as a minor ill. Remissions or intermissions may occur, but finally, the suffering becomes more persistent and oftentimes excruciating. Vomiting may or not be a prominent feature. Unfortunately the localizing symptoms have little or no diagnostic value as to the probable situation of the tumor. At times there may be postural features, so that with certain movements of the head or body the pain is intensified.

Aside from evidence of intense suffering and the character of the pain, the patient with brain tumor presents certain general features which, in a measure, suggest the serious nature of the affection. He looks ill; the countenance is drawn and anxious; and if the symptoms are of long duration, the complexion has a pasty, sallow appearance not unlike that seen in nephritis and cachectic states. The gait, if undisturbed by localizing symptoms, portrays the evident asthenia. Failure to secure even the slightest relief from the use of drugs is also a striking characteristic. Thus, when I am asked to see a patient whose features portray the above characteristics and whose headache has been uninfluenced by the administration of the more reliable analgesics, my suspicion of grave intracranial trouble is at once aroused. An examination of the eye grounds will, in many instances, reveal the nature of the affection. It is to be remembered, however, that a normal fundus does not exclude the presence of a brain tumor, since papillo-edema occasionally does not develop until late in the disease; and that no headache is so insignificant as to justify the failure to make an opthalmoscopic examination. I have been repeatedly impressed with the diagnostic errors of the practitioner who fails to make use of so simple an instrument as the electric ophthalmoscope, for with a little practice and a routine examination of the fundus oculi in every patient, he may soon acquire the skill and experience necessary for a recognition of even the earlier evidences of œdema of the optic nerve.

Probably one of the most common, and certainly one of the most frequently misunderstood types of cephalic pain is that associated with the functional neuroses. These psychalgias of the hysteric and head sensations of the neurasthenic are often perplexing problems to both the physician and the patient, and require painstaking inquiry into the history, social, economic, and domestic conditions of each individual. The underlying neurosis is often obscured by the predominating psychalgia and I have known of instances of this kind in which a diagnosis of brain tumor, tic douloureux, meningitis and cerebral syphilis has been made.

The character of pain in the neurotic may simulate that occurring in any known form of organic disease. It may be diffuse or localized, continuous, intermittent or remittent, and may even be periodic, or confined to a particular nerve trunk, and thus resemble a true neuritis or neuralgia.

The ear marks of the neurosis are, however, generally present, and in spite of the variety of forms which these cephalalgias may assume, they possess certain features which lead one to suspect the nature of the underlying condition. The patient's description of the pain is often

suggestive. The minutest details are related, lest the physician underestimate the intensity of the suffering or regard it as an imaginary ill. The condition is thought to be a very serious affair and there is much apprehensiveness about the prognosis. In spite of this belief some patients will not only smile, but actually laugh while attempting to describe what is said to be an "excruciating pain." One young woman who was sent to me with a diagnosis of tic douloureux, after consuming twenty minutes telling me of her terrific pain, finished by laughing and accusing me of regarding her ills as imaginary, when I had said nothing to her other than to ask her complaint and request a full description of her discomfort.

Many of these patients not only seek the physician's advice, but come to him with a firmly fixed idea that the origin of the pain will be found in the ear, nose, throat, or teeth, although repeated examinations have shown the structures to be entirely normal; and it is hoped that by some special method of examination he may discover and eradicate a condition which many other physicians have been unable to detect.

The frequency with which these functional pains may temporarily disappear through suggestion, the psychic demands of thorough history-taking, and novel methods of examination is sometimes a striking characteristic. I recall the case of a young married woman whose chief complaint was aggravating pain in the left maxillary region, and occasionally upon the right side also. The pain was of a dull continuous character with paroxysms of great intensity. It was several days before I had an opportunity to observe her at the height of her suffering, although instructions had been left to call me upon such occasions. She was later observed in apparent agony, tossing about the bed in a vain effort to endure her persecution, and crying bitterly of intolerable pain in the left cheek. It was suggested that an immediate sensory examination of the cheek be made to determine the presence or absence of anæsthesia. To this she at once objected because of her inability to secure the necessary composure. I then told her such an examination was absolutely essential, since insensitiveness of the cheek might, under such conditions, be indicative of a serious brain disorder; and while I was perfectly confident sensation would be found to be entirely normal, this could not be determined without examination She immediately began to acquire the necessary self-restraint, lay perfectly still, and replied to my questions concerning the sensory test with calmness and evident interest in the procedure. The pain entirely disappeared and the recurrent attacks invariably yielded to similar measures.

The migratory nature, diffuseness, and substitution features of psychogenic pains are also significant. Although trigeminal pain was the

most dominant symptom in the case just referred to, she invariably suffered from pelvic, abdominal, and occipital pain during the menstrual period only. The gynecological consultant found nothing abnormal in the pelvis or generative organs, and regarded these symptoms as purely functional. During the intermenstrual period the face pain was of daily occurrence and to all appearance terrifying; but invariably, with the establishment of the menstrual function and its associated symptoms the trigeminal pain entirely disappeared. It is also interesting that the face pain was not infrequently associated with certain dreams, and particularly those of a sexual nature.

A striking illustration of the psychogenic origin of a certain type of headache is illustrated in the following case: A single woman, twenty-eight years of age, was referred to me because of pain in the distribution of the left maxillary nerve which was said to be tic douloureux.

The psychogenic nature of the affection was evident and definitely related to matters of sex, although it was at all times difficult to secure her coöperation in the discussion of sex matters. After three months of psychotherapeutic regime a degree of improvement was reached and she was advised to continue treatment in a nursing home. Three days before her departure from the hospital she suddenly developed, without any discoverable cause, the entirely new symptom of persistent occipital headache. The pain in the face had entirely disappeared. All efforts to determine the origin of the headache were unsuccessful. She persistently maintained that she had not received any distressing news, that she had not been thinking of anything out of the ordinary, and that she had had no cause to worry. A carefully repeated physical examination revealed nothing abnormal, and my conviction that the headache was psychogenic remained unshaken. Finally, just as I was leaving the hospital and had given certain directions concerning her visit to the country home, she said: "Before you go, I have something to tell you."

I was then confident that her modesty had been overcome and that probably the cause of her headache would be revealed. She placed her handkerchief over her face, began to cry, and said something had been worrying her for three days. I refused to listen to her until the handkerchief was removed, and then learned that the "something" was the statement by a friend that all insanity is caused by too persistent sex thoughts and ideas. Before I could deny the correctness of this opinion she at once announced: "My headache is gone."

Neuritis of the head and face is rarely observed, except as a secondary condition consequent upon local inflammatory or pressure symptoms in which individual nerves may be implicated. Cervico-occipital neu-

ritis is perhaps more frequently met with than similar affections of the trigeminal nerve. In fact, trigeminal neuritis with pain and objective sensory disturbances is extremely rare as an idiopathic affection. Through the kindness of Dr. William G. Spiller I had the opportunity to observe a patient in whom neuritis of the trigeminal nerve was thought to have followed an attack of influenza. Isolated syphilitic neuritis of one or more branches of the fifth nerve is not infrequently observed, and I have recorded an instance in which both Gasserian ganglia were the seat of intense syphilitic inflammation. Intracranial new growths and meningitis may sometimes cause the symptoms of a true trigeminal neuritis; but, in most instances, pain in the fifth nerve, whether of the neuritic or neuralgic type, accompanied by objective loss of cutaneous sensibility, is indicative of a more serious disorder than a simple neuritis.

Neuralgia of the head and face is, on the other hand, a common disorder; and unquestionably the most distressing and perhaps most frequent cephalic pain of this type is that known as trigeminal neuralgia or tic douloureux. I must not, however, occupy your time further than to indicate, very briefly, the more important features of this interesting disorder.

The affection is most frequent during the fourth or fifth decade and is said to be more common in women than in men, although my statistics show that the two sexes are about equally affected. Any one, or all three, of the trigeminal branches may be involved, and usually upon one side of the face only. In some cases both sides have been affected, but not simultaneously.

The diagnosis rests entirely upon the clinical symptoms. The pain must follow the anatomical course of the affected nerve; it is paroxysmal, of not more than two and a half minutes' duration, and is usually induced by some form of peripheral irritation, although it may occur spontaneously. During the interval between attacks there is complete relief. Finally, the disease is never accompanied by dimunition or loss of cutaneous sensibility in the affected area. Whatever the character or duration of the pain, if a definite loss of cutaneous sensibility can be demonstrated in any part of the trigeminal region, a diagnosis of tic douloureux may be excluded.

The pathology of the disease is not known, and if the condition be a true neuralgia, the demonstration of a definite pathological lesion is, according to our conception of neuralgia, not to be expected. Nevertheless, various changes have been described within the nerve trunks and ganglia, but in some instances the histology of these structures is said to be entirely normal. The disease has been thought to depend

upon a true neuritis, probably of toxic origin, or upon a definite sclerosis of the intraneural and intraganglionic vessels. These changes, however, have not been sufficiently constant to warrant a definite conclusion as to their pathological significance. The lantern slides which are to be shown presently demonstrate the most common type of arterial change within the nerve trunk.

In every case of genuine tic douloureux there are five methods of treatment from which the patient, with the physician's advice, may make a choice. Drugs, neurectomy, the injection of alcohol into the nerve trunk, injection of the Gasserian ganglion, and lastly, the major operation for avulsion of the root or removal of the ganglion, may be recommended.

The uselessness of drugs in most cases and the final necessity for some form of operative procedure has suggested to Dr. Frazier the name of "surgical neuralgia" as a suitable designation for the disorder. If, however, medical treatment is temporarily adopted, it is generally believed that strychnine in increasing doses is most likely to be efficacious.

Neurectomy has within the past ten years become almost entirely superseded by the superficial or deep injection of seventy to ninety per cent. alcohol into the nerve trunk according to the practice originally adopted by Schlösser; and it is to this method, together with the injection of the Gasserian ganglion, that my experience has been almost entirely confined.

The technique of the injection has been fully described in the writings of Patrick, Harris, Kiliani, Levy and Baudouin and others, and I shall not attempt to give you the details of a method in which special laboratory and clinical training are essential.

The treatment is usually administered without the use of a general anæsthetic, and, although painful is not unendurable. If the nerve has been successfully injected at the foramen ovæ or foramen rotundum, as the case may be, there is immediate loss of sensation throughout its distribution and complete relief from pain.

The duration of relief varies from a few months to a year or more, and, occasionally, as long as five years. The average duration is approximately eighteen months, and is said to be slightly longer than that following neurectomy. The inevitable recurrence after any form of peripheral operation and, in this particular method, the painfulness of the injection are the usual adverse criticisms which have been made. Thus, it was hoped that by injecting the Gasserian ganglion more lasting results might be secured, and Taptas was the first to successfully perform such an injection. At the same time Harris recorded, independently, injection of the ganglion in twelve cases. Since then the method

has become generally recognized and adopted as a desirable therapeutic measure by those especially skilled in its application.

The clinical and anatomical results following this form of treatment will be partly illustrated in the lantern slides selected from my series of cases and experiments. As in the deep nerve injection, successful impregnation of the ganglion is followed by immediate cessation of pain and more or less complete loss of sensation throughout the entire trigeminal area. The injection is no more, nor less, painful than the deep neural injection; and in one of my cases the treatment was accompanied by so little pain that the appearance of complete anæsthesia was the only evidence of having successfully injected the ganglion.

The duration of relief after injection of the ganglion is not yet determined, for in some cases the relief has been as lasting after deep injection of the nerve as it has in the ganglion injections thus far recorded. My experimental studies led me to believe that though many of the ganglion cells are destroyed by the alcohol, it probably is not possible to procure so complete a destruction of the ganglion at any one sitting as to preclude the likelihood of a future recurrence. By repeated injections, however, it is not unreasonable to suppose that the remaining ganglion cells may be destroyed and thus result finally in permanent relief.

Dr. Wood: "This admirable paper is open for discussion, gentlemen."

DISCUSSION

Major William Allan, Charlotte: Dr. Byrnes, in his discussion of cranial pain with particular reference to trifacial neuralgia, has reviewed the very troublesome subject of headache. No other symptom is so frequent, and few are so difficult to relieve. The exciting causes of headache seem unlimited, the pathology unknown, except that headaches are perceived through the branches of the tricranial nerve. The classification of such an almost universal symptom is hopeless. Dr. Byrnes' classification is as good as any. Edinger has seven subdivisions, Auerbach five, Cabot fourteen, and I have seen one classification with more than fifty subdivisions. I think neurasthenic, psychic, and indurative headaches rare in this locality. The desire of our neurologists to classify as migraine the larger proportion of our recurring headaches characterized by nausea, vomiting, or hemicrania, I object to, because only rarely do we see headache cases with the neuropathic family history, the aura, the functional disturbances of the special senses, the sudden cessation of pain, etc., encountered in migraine.

Edinger's "headache of the anemic" describes our usual sick headache patient, except that anemia is not an essential part of the picture, as

Edinger himself admits. These headaches occur chiefly between the ages of twenty and forty, mostly in women, and after prolonged strain, either physical or mental. The frequency varies from every few days to every few months, and the duration from one to five days. The pain is dull, generally temporal, in either one or both sides of the head. Malnutrition, with low caloric food intake, is almost constant. Backache and insomnia are very frequent. Gastric symptoms, nervousness and constipation are present in about half of the cases. Early morning diarrhea and excessive diurnal variation of body temperature are occasionally seen, especially from the relaxation caused by the heat of our summers. In women leucorrhea, with shortening of the menstrual cycle, and increase in duration, amount of flow, and discomfort of the menses, are very frequent. Low blood pressure is almost always present, and seems to vary directly with the functional diarrhea, functional fever and functional leucorrhea.

The disappearance of headache during pregnancy is often striking. Our ordinary recurring sick headache is never an isolated symptom, but always part of the picture of general functional depression, and can be reproduced experimentally at any time by fatiguing the patient. No drug relieves the pain in well-developed cases. It is only by relieving the strain, and by restoring body weight and muscular and vascular tone, that these headache sufferers can gradually be taught to live above the level of recurring sick headaches.

Dr. J. P. Munroe, Charlotte: The Society is indebted to Dr. Byrnes for this very interesting paper, and I wish to thank him personally. I enjoyed especially the demonstrations, even where the pictures were not good on account of the light. He has given some points that are not only good, but new and interesting, and there are one or two points in this discussion to which I want to refer. In every case of headache that is present I think it right and proper to examine the optic disc. In brain tumor you expect to find choked disc. We expect to find choked disc in most cases, but occasionally we do not, depending somewhat on the location of the tumor. It will call up a great many blood pressure cases, and sometimes we have syphilitic diseases to contend with. I found this in two severe cases in the last six months.

Dr. Allan has referred to blood pressure, and this puts you on the track of what is the real cause of headache. A large number of patients are referred to me by oculists saying that there are evidences of nephritis; they come to me and I take the blood pressure and have the urine examined. Beginning nephritis is one of the commonest causes of severe headache.

Dr. Byrnes, closing the discussion: Major Allan has forced me to occupy more of your time with a discussion of this subject. I do not wish to intimate that I have attempted a new classification of head pains. I have simply attempted to present the subject as best I could in the time at my disposal. I do not mean that all cases of migraine are of the classical type. In fact, Major Allan is perfectly right. There are many instances of the abortive or migraine type of headache in which classification is difficult. Neurasthenic headaches are not few and far between. I should dislike to have to walk through this audience and avoid all the neurasthenics who may be present. We are all more or less neurotic in some respects, although some of us exercise better control over our emotions than others.

There is, however, such a thing as head pain of psychic origin. The case Major Allan describes as "church headache" may arise from the fatigue of looking at too many new hats, or the unaccustomed exercise of attention. But why should we have a psychic pain, and what evidence have we that there is psychic pain? Such pain is not imaginary. If you approach a hysterical patient with such a conception, or are thoughtless enough to use the word "imagination," you might as well sever your connection with the case at once. All of us, at some time, have encountered painful or unpleasant experiences, and however remote this experience may be, there is always the possibility that it may become a part of our conscious concept as actual pain, similar to that connected with the original experience. Were it possible to think of an individual who had never experienced pain, I am convinced that such a person would be incapable of exhibiting what we refer to as a psychalgia. Let me illustrate.

A patient was referred to me because of persistent headache, said to be due to brain tumor. The headache was continuous, of variable intensity, and accompanied by vomiting. Many examinations of the nervous system and the physical examination of a competent internist failed to reveal any organic foundation for the symptoms. When the patient was asked, "Are you happy?" her reply was a hesitating and doubtful "Yes"; and searching inquiries were then made into her marital and domestic life. It developed that she had been married five years, and that during that period *coitus interruptus* had been persistently practiced. She possessed a strong maternal instinct, and the exercise of her sexual function had always been abortive, and from the beginning followed by discontent, insomnia, restlessness, emotional outbreaks, and headache. These symptoms finally became persistent and associated with "morning sickness," no doubt associated with the desire for motherhood. Appropriate psychic management and adjustment of her

marital difficulties furnished the desired relief, and when seen a year later she was enjoying perfect health. I do not know how Major Allan would classify this type of headache, but it makes little difference what name is given it, so long as an effort is made to understand its associated psychic phenomena.

Dr. Munroe has emphasized two very important points. Unfortunately, in brain-tumor headache the location of the pain is rarely of diagnostic or localizing value. He wisely called your attention to the importance of a careful ophthalmoscopic examination in all cases of headache. His suggestion as to the value of lumbar puncture as a means of determining the presence of increased intracranial tension deserves a word of caution. If there are evidences of increased pressure or reasons to suspect an intracranial growth, lumbar puncture should be cautiously performed, and this is particularly true in case tumor is suspected in the posterior cranial fossa, because of the likelihood of resulting hernia cerebri into the foramen magnum, from sudden reduction of intraspinal pressure.

MY EXPERIENCE WITH DR. GOLDBERGER'S THEORY OF THE CAUSE OF PELLAGRA

K. G. Averitt, M.D., Cedar Creek

When my esteemed friend, the Chairman of the Section on Practice of Medicine, asked me for a paper for his Section, he said I might write on any subject I preferred, but he would like to have a paper on Pellagra. This, until very recently, has been a difficult subject to discuss, because we did not know its etiology. We know its etiology now, and I was tempted to take some other subject, but it occurred to me that experience with Goldberger's theory might be of interest to some.

The fact that the disease is very common in countries where maize is the chief article of diet caused many to think that it was the agent responsible for the trouble, but those who held this belief could not tell whether it was caused by some germ or mould in the grain, or whether the maize was an insufficient diet. Some thought it was due to soil pollution, some that it was caused by the sun's rays, some that a nematode found in water was the agency, some that cottonseed oil and hookworms were to blame, and then came the brilliant work of Sambon in trying to prove that it was an infectious disease, and that the intermediate host was an insect. Reasoning along this line, the Chairman of this Section at one time thought the abominable bedbug

might be the carrier, and did much work in investigating the habits of this pest. Indeed, at the time, I was almost sure that he was going to prove this pest to be the cause, but, like others, he failed to make out a case, and the work was fruitless. Of all these theories, the maize theory was the only one that had an element of truth in it, and this was not altogether to blame, as we shall see further on in this article.

It remained for an American, Dr. Goldberger, to discover a universal cause. Dr. Goldberger believes, and produces almost indisputable proof, that the disease is caused by an unbalanced diet, or, in other words, a diet lacking the vitamines necessary for the proper nutrition of the body. When the Doctor announced his theory, I, like many others, doubted the correctness of his observation, but increasing experience with the disease has convinced me that he is right.

The theory satisfactorily explains many questions connected with the disease that no other theory has answered or can answer. For instance, its close association with maize could not be explained, but now we can see that where maize was thought to be the cause, the people were living almost altogether on corn products, and hence on a very one-sided diet. It explains why more cases are found along streams of water, because, go where you may, it is readily seen that in the early settlement of the country the agricultural classes settled along streams in order to have easy access to water for their stock, and because the streams furnished drainage for their farms, and afforded a means of livelihood by fishing. As a result of such environment, you find more people of a shiftless and lazy disposition living along streams, and a people who easily fall into the habit of eating the cheapest and most easily procured food. It explains why you have more cases in the suburbs of towns, because the needy and undernourished inhabit the suburbs, while the wealthier classes live uptown. It explains the prevalence of the disease in mill villages, because practically all the women and children in these places work in the factory, and have very little time to attend to a cow or to procure and properly prepare the right kind of food, and therefore they buy and eat articles of diet that have very little nourishment in them. It explains why more women than men have the disease, because they eat less and drink less of articles of diet necessary for the proper nourishment of the body than men. They are light meat eaters, very few of them like eggs, many of them will not drink milk, and nearly all of them stint their diet in trying to develop a beautiful face or figure. It explains why the disease is common in chronic alcoholics, because such patients keep full of alcohol, and have very little appetite for anything else.

At first glance, the theory may not seem plausible in all cases, but when a patient consults you, ply that patient with questions after the manner of a lawyer on cross examination, and you will find some freak of diet.

Just what elements are lacking in the food is difficult to say, but the elements necessary for maintaining a good nervous equilibrium between the various organs of the body are probably the most important.

The best test of a theory is to put it into execution and see if it produces results. Before Dr. Goldberger announced his theory, I told my patients to cut out corn products and sweet articles, and to eat everything else they could think of, or could get their hands on, and then I gave them arsenic. I can look back over my work now, and see that those who obeyed my instructions as to diet got well in spite of the arsenic, and those who continued on the same diet soon landed in that country from which no traveler ever returns. I was not very far wrong with my diet, but I made the mistake in attributing my results to the arsenic. Since the announcement of the theory, I have given very few drugs, and depended more and more upon diet, and my results have been better. The patients have improved equally as well without the arsenic as with it, and I have not had so much trouble with eyes and burning feet.

The only cases that have not improved or recovered have been chronic cases with a badly damaged nervous system, and cases that persist in eating the same diet they were eating before they came for treatment.

To sum up, I would say that the theory is correct, and that, if begun in time, it will cure nearly all cases, and will prevent all. Its power to prevent this disease is only equaled by the power of vaccination to prevent smallpox, and should receive the same attention at the hands of State Boards of Health and those whose duty it is to preach preventive medicine.

DISCUSSION

Dr. E. J. Wood, Chairman: The thing that seems to me to be vital about the subject which has been so well handled by Dr. Averitt is the point that pellagra is a deficiency and not, as Cæsar Ambrose thought, a toxicity. Another point brought out is that it is not corn—not the eating of corn—that causes pellagra, but the way in which the corn is milled. Commercially milled corn is deprived of the germ which contains the essential substances and is, therefore, deficient. Whole ground corn meal is an excellent food.

Now, I found that if I would take the corn hearts and feed them to pellagra patients, giving them no other food at all, unless organic change

had progressed too far they would recover. Arsenic is a good tonic and may increase the appetite. It is not a specific in pellagra, and may produce arsenical neuritis if given too boldly.

Dr. A. A. Kent, Lenoir: This disease is one of the medical stumbling blocks upon which we practitioners went down most violently. I have had in a general way the same experience as all other practitioners. I have followed Dr. Wood most scrupulously in the theory and practice, in his efforts to find the real cause and a scientific treatment for this disease. I think he was the first man in the State to point the profession to these diseases. In his experimenting and scientific research during all these years, he has been a faithful pioneer in these diseases. I have followed religiously any line of treatment offered by him, as well as that of many others. But, I think I had better omit former treatments. When we speak of former treatments we smile at ourselves.

There have been a great many puzzling questions in this disease that doubtless you doctors have tried to answer for yourselves. One of them is why for so long a period of years we did not seem to see, or recognize pellagra, until Dr. Wood called our attention to it. For a time I tried to review my years of practice to recall, if I might, cases I had had, or had seen, in past experience which I did not recognize, or in which I had made a mistaken diagnosis. It was quite a time before my mind opened up in a way to bring back pictures of cases I had seen, and that now I am quite positive were pellagra. At first I actually thought it was a new disease that had reached our country. Having been in practice longer than most of you, I now declare that it is not a new disease. I now recall cases that occurred in my practice years prior, that died of this disease. I diagnosed them as gastric troubles of one kind or another with a chronic eruption, most often called eczema, as a complication. They were diseases of the stomach, or so it seemed, and I treated them as such.

Later, when it was thought that we had a new disease to contend with, I followed along the other theories, treated them accordingly, and my pellagra patients nearly all died. Yet, a few did live because of corrected diet. I think I corrected the diet in all cases, but was not strict enough in it to cure my cases, until after the theory of incorrect diet was advanced as the real cause.

After the diet theory was advanced, I began to treat them largely by diet, yet not entirely so. I am confident that a large number of these people are benefited very materially by digestives and tonics. The condition of the digestive organs and of the blood and nervous system becomes so impaired that they need all the aid which can be given. While they are much benefited by medical treatment, the real treatment is diet.

I do not see so many cases of pellagra now as I formerly saw. Why is it that for several years we heard so much about pellagra, and in the last few years, since the diet theory was advanced, we hear so little about it? The answer is that we have educated the people by preaching proper diet, and there are actually fewer cases. Since we cure them by proper diet, with some additional medical treatment, we say and think less about it than we originally did.

It is a great satisfaction and comfort when I see a case of pellagra now that I can assure that person, if not too far gone, that he or she will recover. I could not do that once, but can now, and feel that I am perfectly warranted in assuring the patient of recovery. I see a few cases with brain lesions where they do not recover. In these few cases there is injury to the brain structure. Under the best of treatment they are left in a condition of mental derangement. But they improve under proper treatment once in a while. Now and then I see a case that is too far gone to do anything with it.

Dr. Averitt, closing the discussion: I do not think there is anything further to say on this subject. I think Dr. Kent is with us, and we are on the right line when we say Goldberger is right. Since writing this paper, I have seen the worst case of pellagra I have ever seen. The man was a negro preacher, in intelligence about the average of his race. The stomatitis, salivation, skin lesions, diarrhea, and mental condition were simply horrible. I inquired very closely into that man's diet, and his wife said that for three years he had been living almost entirely on bread and sweet things—another very strong evidence of dietary origin of the disease.

THE RECOGNITION AND TREATMENT OF CARDIO-VASCULAR-RENAL DISEASES IN COUNTRY PRACTICE

Dr. T. C. Johnson, Lumberton

I wish to apologize in the beginning for treating so important a subject in such an unscientific and disconnected way, but the realization of the necessity of an early recognition of this trouble if one's patients are to be benefited or their lives prolonged, and the seeing almost daily in my practice men and women in middle life suffering from this trouble, emphasizes the necessity of calling the attention of the medical profession to this disease, especially those of us that practice in small towns or villages, where scientific methods of diagnosis and treatment are noticeable by their absence. It is too late to give any great amount of relief if this condition is not recognized until the late stages, while an

early recognition often prolongs useful lives several years. For convenience, rather than correct classification, I will enumerate briefly some of the more frequent early symptoms; observation will show that it is impossible always to give the early symptoms with any degree of accuracy, as the symptoms vary greatly in their initial appearance in different individuals.

1. *Cardiac Symptoms.*—Of the early cardiac symptoms shortness of breath, pulmonary edema, anginoid pains, edema of the lower extremities and hypertrophy of the heart are the more common. If care is exercised in tracing the history of the patient it will be surprising to note the number of patients suffering from shortness of breath as the first symptom. Pulmonary edema, usually a late symptom, occasionally occurs early. Anginoid pain on exertion occurs early in a rather large percentage of patients, likewise palpitation. Edema of the legs, usually a late symptom, is occasionally early. (I have in mind a patient treated by me in whom it was first.) Hypertrophy of the heart and hypertension are nearly always present if there is kidney involvement.

2. *Renal Symptoms.*—Polyuria, nocturia or frequency of urination, albumen and casts, and oliguria are the more frequent early renal symptoms. Polyuria, with the urine of low specific gravity, from 1010 to 1016, is an especially early symptom in this disease. Quite frequently albumen is found only in traces, and then not until several examinations have been made at different intervals extending over a period of several days. Often albumen and casts are the first evidence of the renal condition. Oliguria is usually a late symptom, but at rare intervals it is the first.

3. *Cerebral Symptoms.*—Dizziness or vertigo, a feeling of fulness in the head, pain in the occiput, tinnitus, and a peculiar headache coming on in the early morning hours, usually between the hours of two and four A. M. and passing off after breakfast, or at latest at nine or ten o'clock in the morning. This is the "typical" headache described by Dr. T. C. Janeway,[1] of New York. I have a patient at present that has suffered from this type of headache for the past several months. Occasionally it has been so severe that the patient can not sit up until eating breakfast or at least taking a cup of coffee. Dizziness or vertigo is a very common early cerebral symptom, and the patients in a large number of instances will consult the family physician and still want to do their own prescribing, telling him that they have a peculiar feeling in their head and feel sure they need a dose of calomel.

4. *Vascular Symptoms.*—Of the vascular changes, high blood pressure or hypertension and arteriosclerosis, purpuric spots and ænemia are the more common symptoms. Hypertension and arteriosclerosis oc-

cur comparatively early, and at this point it is well to add that we should be especially careful in our pressure readings, not depending on the systolic pressure alone but upon the systolic, diastolic, and pulse pressure, and computing the percentage of heart load. W. J. Stone[2] states that the diastolic is a better index of cardiac and renal conditions than the systolic. Warfield[3] also believes that the diastolic readings are the more important. He states a high diastolic reading means more work for the heart and leads to hypertrophy of the left ventricle. A high systolic pressure is invariably associated with a high diastolic pressure, and in a failing heart the systolic pressure approaches the diastolic until the pulse pressure becomes *nil.* He further states that it is conceded that high diastolic, high systolic, and increased pulse pressure indicate chronic interstitial changes in the kidneys in the face of normal urinary findings. Purpuric spots usually occur late, but were the first symptom in one of my patients. Anemia is usually a late symptom, but sometimes found early.

5. *General Symptoms.*—Of the early general symptoms, fatigue or exhaustion on slight muscular exertion, mental depression, neuralgic or muscular pains, anorexia, epistaxis, hæmoptysis, and retinal hemorrhages occur early with more or less regularity in a fairly large percentage of patients of this type. Gastrointestinal disturbances are usually late symptoms, but sometimes occur early. Cough is usually late, unless preceding a sudden attack of dypsnœa occuring as an early symptom.

When any of the above symptoms occurring in patients between the ages of 40 and 60 (as the greater number of patients suffering from cardio-vascular-renal disease are between these ages) are persistently present it is well to keep the patient under observation for days or weeks, even though kidney, heart, and pressure readings are negative, for often after repeated examinations only can a satisfactory diagnosis be made. Ophthalmoscopic examinations of the eyes often show retinal changes due to pathological conditions in the kidneys that have been unsuspected by the ordinary chemical urinalysis.

Treatment.—For convenience I divide as follows: Rest, search for focal infections, diet, drugs, and the confidence of our patients. First, and of paramount importance in the treatment of cardio-vascular-renal conditions, is rest, and, if heart compensation is threatened, rest in bed.

Second. a thorough, painstaking search should be made for any focal points of infection that might have a bearing on the condition, for example, careful examination of the teeth. If teeth are found to be decayed, or if pyorrhea be present, have the necessary dental repair made or the teeth extracted, as the occasion demands. We should make a

rigid examination of the tonsils and nasal sinuses, get a full history of any discharges from the ear, examine for chronic appendicitis, and if any suspicious points are found, have them remedied.

Third, diet. A proper dieting of cardio-vascular-renal patients is of the utmost importance, especially where there is any renal involvement. We have all doubtless realized the difficulty in properly dieting cardio-renal conditions, for if we adhere to a strict diet best suiting renal pathology, and cardiac pathological conditions are present, we are likely to cause serious consequences to the heart muscle. When renal symptoms predominate in acute conditions or acute exacerbations of a chronic condition, a good rule to work by is to starve the patient if the heart can stand it. We can often give our patients great relief by giving them milk diet by the Karell method (32 ounces of milk given in four feedings of eight ounces each during the twenty-four hours, prohibiting other food and water). This is especially advisable if the patient is waterlogged, that is, suffering from edema of the lungs or lower extremities. In the chronic conditions I am heartily in accord with Dr. F. C. Shattuck,[4] of Boston, Mass., in that "A varied is more likely than a monotonous diet to promote the manufacture of good blood and thus to promote good nutrition of the body in general and the myocardium in particular." Unless the urgency is great, it is best not to unnecessarily starve the patient, but rather give a carefully selected, nutritious diet containing a small amount of proteids, at the same time remembering that it is not the proteids themselves, but an excess of proteids, that cause trouble in chronic cardio-renal conditions. Fresh green vegetables and fruits in their season are nearly always permissible in the chronic forms. The white meats, fish, butter, and milk may be given. If the tissue waste is great, red meats in small amounts may be given at the noonday meal; animal broths, however, should be prohibited, as they contain little of nutritive value, only the essence. The condiments should be prohibited, as doing without these necessitates no great hardship on our patients. We shall do well to remember that a qualitative rather than a quantitative diet should be given, remembering that the amount of albumen is no criterion as to the extent of dietary restrictions, but rather the quantitative output of urine.

Fourth, drugs. Of the drugs used in the cardio-vascular-renal condition with greatest success are digitalis, sodium nitrite, nitro-glycerine, salines, diuretin, and theocin. Digitalis is the most useful drug we have, especially useful in failing compensation and edema of the lungs. When necessary to prescribe digitalis a good standardized preparation should be used. The digipuratum tablets, which are convenient to

administer, at the same time standardized and free from fats so often disagreeing with the stomach, or an infusion made from the leaves, of known strength, in my opinion are the most reliable preparations of this drug that can be given. Digitalis is given advantageously in a series of twelve doses, two the first day, four the second and third, and two the fourth. I am indebted to Dr. E. J. Wood, of Wilmington, N. C., for calling my attention to this method, which I have used in a number of cases with very gratifying results. Salines are always indicated in waterlogging and where it is necessary to relieve the kidneys of part of their work. Of the diuretics, diuretin has proven an especially valuable remedy in my hands given in seven and one-half grain doses at four to six hour intervals for thirty-six hours. It is not well to give longer than thirty-six hours without an intermission, as it occasionally causes complete kidney blocking. Theocin in three-grain doses given in warm water three times daily often proves to be a valuable diuretic.

Fifth. The confidence of our patients should be obtained by explaining along broad, clear-cut lines why it is necessary to have their continuous coöperation rather than spasmodic efforts on their part to get the best results for their cure or comfort.

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DISCUSSION

Dr. W. P. Whittington, Asheville: I have been very much interested in Dr. Johnson's paper and in the competent way the subject was handled. I have had considerable experience in the treatment of cardio-vascular-renal diseases, and have learned not to rely entirely on digitalis for treatment of the heart symptoms. Each case must be individualized, and as we often have gastric and liver complications, we must use such combination of drugs and hygiene as will tend to brace up all the weakened organs, and put them in condition to help overcome the defects of the heart, vessels and kidneys.

In the same family as digitalis, we have squill, sourwood, cactus grandiflora, strophanthus, etc. Some of these are just as effectual and less dangerous than digitalis.

Elder and apocynum cannabinum are very useful for their cholagogue, diaphoretic and sudorific effect, and can be combined with some of the above drugs with very good results.

These drugs can be had on the market, and can be used in the form of infusions, tinctures, extracts or alkaloids.

We must always take into consideration proper diet, rest and exercise, or we shall not get the benefit we should from any line of treatment.

Dr. E. J. Wood, Wilmington: I would like to mention the importance of the Wassermann test in every one of these cases, for every one of them most probably will go 4-plus. I do not think we can be too careful in remembering to give these patients arsphenamine and mercury. Arsphenamine is the official name. If arsphenamine is given, as it should be, my own experience is that you can start with one decigram and gradually increase, but never go over three. Kolmer, of Philadelphia, cautions against following mercury too closely with arsphenamine. Mercury is the more dangerous drug.

Dr. Johnson, closing the discussion: The early recognition of cardio-vascular-renal disease, before the symptoms are so severe that most of the laity can recognize this trouble by looking at the patient and hearing the symptoms, is of vital importance.

In the town and surrounding country in which I practice it is alarming to note the number of men and women between the ages of 40 and 60 who are skating on thin ice and never realize it. It is alarming to me to see apparently healthy individuals pass out who never realized they were sick.

THE IMPORTANCE OF THE ROUTINE STUDY OF THE FECES

Dr. L. E. Farthing, Wilmington

The war has taught us many of our shortcomings and needs, the draft boards having had some of them forcibly exhibited to them. It is not the scope of this paper to speak of the more spectacular of them, but to try to show some of the reasons why we, as physicians, should make more examinations of the feces than we have, even in individuals not especially suspected of being infected with intestinal parasites. We have known all the time that efficiency is the thing that counts in anything that is worth while. The period that we have recently passed through has taxed human ingenuity to the utmost, not only in the fighting of battles, but in performing the other things incident to the war which were equally as exacting, and as the draft officials were forced to lower the standard of physical and mental requirements no less than a half-dozen times, it seems that something is wrong that should at least be attempted to be remedied.

Now, naturally, we would suppose that an individual infected with intestinal parasites could not be as efficient as he would be if he were

not infected, even though he be apparently normal, which condition was actually shown to exist, by Dr. Stiles, in the examination of 1,652 school children of Wilmington, N. C., as to physical development and mentality even in children with a light infection, varying somewhat with the species of parasitic infection, being more marked with the Necator infection. These children were grouped for consideration into those having sewer connections to their homes and those that did not, and with only a few variations which could be easily accounted for, in that the children that had sewer connections in their homes were exposed, in the radius of their play, to the privies of the homes that did not have the sewer connection, those children from homes without sewer connections gave a higher percentage of infection than did the children from homes with sewer connections.

While Dr. Stiles does not think that all the mental and physical retardation is due to the parasitic infection, yet his and other statistics bear us out in the belief that the retardation is largely due to the parasitic infection. I think it would be only natural that these children who are hosts to parasites would be somewhat dwarfed in mind and body in varying degree, according to individual resistance and degree of infection, as well as to the species of infection, the Necator seemingly being more capable of producing retardation stigma. Just why we have varying degrees of retardation with the different parasitic infections is not clear to us. The Ascaris being a larger worm than the Necator, we would suppose that it would be a greater drain on the host to furnish nutriment for the larger worm, and thus it would cause more retardation, but this is not the case. From this we would naturally come to the conclusion that it is not so much due to the loss of nutriment that the parasite draws from the host, but more to the toxins emanating from the parasites.

Not only is an individual that is infected with intestinal parasites not as efficient, but he is more susceptible to other diseases, also such persons are infection stations for others, and expose all of us to unconscious coprophagia.

Dr. Shore tells us that of the 389,822 examinations made of feces from every county in the State, except Ashe, about one-third were infected with the Necator, the more heavily infected counties being the southeastern and the southwestern groups. The infection seems to be unevenly distributed over the State, there being certain counties with a heavy infection, whereas an adjacent county is lightly infected, also one valley in the hill country may be heavily infected, and an adjacent valley be practically free of infection. This shows that the disease had not become as generally distributed as it might, and I think we can thank

the hookworm eradication work that has been done for its check. The recent examinations made at Wilmington, as well as at the State Laboratory, show that the disease is on the decrease; this should not in anywise lessen our efforts, but rather be a stimulus, as it shows that we can get results.

The old pathognomonic sign of worms, "presence of worms in the feces," was good as far as it went, but if we, as physicians, wish to make the diagnosis, we must adopt as our pathognomonic sign, "presence of ova in the feces."

We often work hard and study much to make a diagnosis, but this is one means of making a diagnosis that is really very easy. With very little experience we are able to make these microscopical examinations, and if we do not care to make them ourselves, the State Laboratory is always ready to make them for us; so it seems that it would be almost inexcusable not to make a diagnosis of this kind, though the writer has had occasion for reproach as well as embarrassment for not having made microscopical examination of the feces.

If we make these examinations of the feces it will not only aid us in the diagnosis for parasites, but will reveal many other things incidentally that will be of great help to us in treatment of the patient.

We want to get our population free from intestinal parasites, not only to make them better soldiers but to make them better citizens, and possibly better still, they will keep us out of wars. The Necator seems to be the one most productive of evil effects, and fortunately it seems to give the most promise of being eradicated. Then we want to be on the sharp lookout for new parasitic infection in our returning soldiers and others who have been in other parts of the world, and stop its spread in the beginning.

It is the opinion of the writer that if we, as physicians, make or have made a routine examination of the feces of as many of our patients as possible, administer treatment to those infected, give the necessary instructions as to the cooking of foods, especially meats, and forever do away with the surface privy, we shall have in a few years done away with intestinal parasites.

CONVALESCENT HUMAN SERUM AND OTHER SERUMS IN TREATMENT OF INFLUENZA PNEUMONIA

Dr. J. P. Munroe, Charlotte

This treatment was first suggested to the writer by seeing the brilliant results obtained at the Naval Hospital, Chelsea, Mass., as reported by McGuire and Redden[1]. In this, their preliminary report, they

stated that their mortality, previous to using convalescent serum, had ranged from forty to sixty per cent. Beginning the use of human serum on September 29th, they had used no other treatment, and up to October 19th, date of the report, thirty-seven cases had been treated, with only one death.

Their latest report[2] covers one hundred and fifty-one cases of pneumonia with signs of consolidation. Their summary of the one hundred and fifty-one cases of distinct influenzal pneumonia is that one hundred and forty-eight cases recovered from influenzal pneumonia. Three died. Three primary recoveries later developed a hemolytic streptococcus bacteriemia and empyema, followed by death. The report adds, "the greater number became normal within forty-eight hours after the first injection of serum."

The writer began this treatment October 23rd and has been using it ever since in all suitable cases when the convalescent serum could be secured. Our experience corresponds with that of McGuire and Redden in that the vast majority of our influenzal pneumonias have either a normal white blood count or a leucopenia.

They say, "All cases that did not respond to convalescent human serum treatment had high white blood counts, although many with high counts did respond readily." Cases of bronchopneumonia with white blood count below 10,000 or 12,000 are most favorable for treatment with this serum.

Clinical observations and laboratory tests indicate clearly that those cases of pneumonia with leucocytosis are infected with some type of diplococcus or streptococcus.

Theoretical considerations, experiments conducted at the Rockefeller Institute, New York, clinical results at certain base hospitals, as well as the writer's own clinical observations, indicate that the ideal treatment under such conditions is to use stock antipneumococcic serum. No stock serum is considered of value for type four diplococcus, but a majority of cases in this section are infected with types one, two or three. Therefore, in cases not typed, we use the polyvalent serum prepared for types one, two and three. In cases where streptococci are found to be present, we combine with it antistreptococcic serum.

Three general methods have been adopted in using human blood:

(1). The method of McGuire and Redden in which both fibrin and corpuscles are separated from the serum.

(2). The transfusion of citrated immune blood. This method was used by Ross and Hund, Mare Island, California. They report[3] a reduction of mortality in this hospital from 42.6 per cent to 21.4 per cent—twenty-eight cases with six deaths.

(3). The citrated plasma from which the corpuscles have been separated either by sedimentation or centrifuging. This method has been used at the Naval Hospital in Washington, as reported by O'Malley and Hartman.[4] The mortality there was reduced from 26.5 per cent. to 6.6 per cent.

The citrated plasma we have used in most of our later cases, and the writer believes it has advantages over either of the other methods.

Our report covers thirty cases—six deaths, a mortality of 20 per cent. In eleven we used only human serum or plasma and all recovered. In nine only polyvalent antipneumococcic serum was used, and there was one death. In ten cases both human and stock serums were used, with five deaths.

The very low mortality shown in the reports from Chelsea and Washington Naval Hospitals is probably due in part to the more favorable subjects treated, and also the fact that they were in position to get an abundance of immune blood. The mortality at Mare Island was influenced by the fact that all the cases were of lower type people.

My mortality is higher than would be expected, due to two facts: (1) The difficulty of securing a sufficient amount of immune blood when needed. (2) Beginning the treatment too late for any serum or medicine to be of value. With one exception, every one of my cases recovered where the serum was given in the early stages of pneumonia, and many that recovered were far advanced when treatment was begun. The one exception that died in spite of early treatment was a diplococcus infection of type four pneumococcus, The human serum had no effect on him. The polyvalent at first acted favorably, bringing the temperature to normal and improving other symptoms. At the end of a week, however, his lungs suddenly became œdematous and he died promptly.

It is a serious mistake to wait for definite signs of consolidation. I think Cabot of Boston is correct in saying that cases of influenza, where fever and other symptoms of tolerable severity continue longer than four days, should be considered pneumonia and treated as such. Treatment with serum should be repeated every twelve to twenty-four hours until the fever and other symptoms are relieved.

To secure results it is of course necessary to have blood of proper quality and that which contains the antibodies. My observation is that about two-thirds of convalescents have blood that is valuable. Some place the proportion considerably higher and others lower. For this reason, it is now the rule to get blood from several donors and pool it. The blood should be gotten from convalescents one to four weeks after recovery.

I will describe briefly a few typical cases treated.

CASE 1.—Child 12 years of age was brought to the Charlotte Sanatorium October 23, 1918, in the seventh day of her sickness and the third day of her pneumonia. Temperature on entrance was 103.6. There was an extensive bronchopneumonia, involving practically all of the lower lobe of the right lung, with several spots near the base of the left lung. We gave 75 c.c. convalescent human serum at 3 P. M. At 8 A. M. next morning her temperature was reduced to 101 and at noon of the same day it was 100 and became normal in twenty-four hours. No other serum was given and she had a rather slow but satisfactory convalescence.

CASE 2.—Married woman aged 28, entered hospital November 4. Temperature 104, bronchopneumonia involving practically all of the lower right lobe and part of the upper lobe. At 5 P. M. November 6th we gave 100 c.c. human serum. At 9 A. M. the next day the temperature was reduced to 102, at noon to 101, and at this time a second dose of 100 c.c. was given. This was followed by a gradual decline in the temperature until 8 A. M. the following morning, 18 hours after giving the first dose, when it became normal. During the afternoon of that day it again rose to 101. In the light of our later experience, we believe it would have been wise to have followed with subsequent doses, either of human or, perhaps better, polyvalent antipneumococcic serum, until the temperature had become normal and remained there. There was a slight daily rise for one week after the last dose was administered, and at the end of that time a mild attack of pleurisy developed in the left side. The pain accompanying this was quickly relieved by strapping and the temperature again quickly became normal. At the end of two weeks another complication threatened to give serious trouble. An elevation of temperature to 101 was found to be accompanied by a phlebitis in the left femoral vein. For this we gave subcutaneously 20 c.c. antistreptococcic serum and 24 hours later 20 c.c. each of antistreptococcic and antipneumococcic. These reduced the temperature promptly to normal and the inflammation gradually subsided.

CASE 3.—Young woman, 22 years of age, entered the hospital with influenza on Saturday, December 12th, with a temperature of 103. The following Wednesday, when we expected her temperature to become normal, it went higher, reaching 104, and distinct signs of pneumonia were found in the lower lobe of the right lung. 100 c.c. human serum was given at 6 P. M. At 9 A. M. the following morning her temperature was 101. It continued to decline and was normal at the expiration of 24 hours. Her convalescence was rapid from this time on. This appears to have been an unmixed case of influenza pneumonia. The white b.c. was 2,500 before treatment.

CASE 4.—Young woman 28 years of age was doing public nursing. She saw about 25 cases of pneumonia during the day of December 6th, going from house to house. She had chilly sensations throughout most of the day and, on going to her room that evening, found she had a high temperature, as well as a pain in the left side. She was taken to the hospital at once and physical signs of pneumonia were found in the lower lobe of the left lung, temperature of 104, pulse 126, respiration 30. 100 c.c. of human serum was given and one hour afterwards she had a severe chill. This was followed by a rising temperature to 106.4. Her heart became very rapid and irregular, and it

looked for a while as if she would die. After two hours, however, her temperature began to decline and at the end of twelve hours it was 100. At the end of 24 hours it had gone up to 101. At the end of 48 hours it was again normal and remained so.

Case 5.—Man aged 83. Had influenza for four days and seemed to recover, the temperature becoming normal and remaining so two days. On the night of the sixth day he had a severe chill followed by high and continuous fever and other clinical symptoms of diplococcus pneumonia. I saw him first in consultation on the fourth day of his pneumonia. At this time his temperature was 103. Most of the time the patient was semidelirious. 50 c.c. polyvalent antipneumonia serum was given. A severe chill followed in one hour. Afterwards temperature went to 106, but soon came down and within 12 hours was 97. A profuse sweat, weak and thready pulse, and general prostration came near proving fatal, but at the end of twenty-four hours he had reacted and had an uneventful recovery.

Case 8.—Married woman aged 26. I saw this case in consultation with one of my colleagues, who has kindly permitted me to include it in the report. She had been sick with influenza seven days. Signs of pneumonia developed on the fifth day. At our first examination we found her with a temperature of 104, respiration 36, pulse 126. The lips were swollen and blue, the finger nails blue, and cyanosis well marked everywhere. At 8:30 p. m. we gave 110 c.c. citrated human plasma. At 9 a. m. the following morning temperature was 101. At the expiration of 24 hours it was 99; within 30 hours it was normal and the cyanosis had practically disappeared. At the end of 36 hours, much to our surprise, the temperature had gone back to 101, but the patient was very comfortable and otherwise doing well. It later declined to normal and she had a satisfactory convalescence until a phlebitis developed in the left thigh. This delayed ultimate recovery two or three weeks.

Case 12.—Married woman aged 30. On the seventh day of influenza had a distinct chill followed by a temperature of 105, pain in the right side, and slight delirium. We gave her at 7 p. m. 50 c.c. polyvalent horse serum. This was followed in 17 hours by a second dose of 50 c.c. combined with 75 c.c. of human serum. The temperature had declined to 103 after the first dose of polyvalent serum, but there was no further change until six hours after the dose of human serum was given, at which time it became normal and remained so. She had a rapid convalescence.

Case 13.—Man, aged 40. Had been sick for eight days, with pneumonia in the left lower lobe for three days. He was distinctly cyanotic and had a mild delirium. We gave him a mixture of 75 c.c. human serum, 35 polyvalent and 15 streptococcic serum. These odd figures were occasioned by our losing some in preparing to administer. His temperature came down rapidly from 103 to normal in 24 hours, and he had an uneventful recovery.

Case 14.—Man aged 41. On the sixth day of a tolerably severe case of influenza, he presented physical signs of bronchopneumonia in the lower lobe of the left lung. We promptly gave 100 c.c. of human serum. This made no impression on the temperature or general symptoms. He was expectorating very freely and an examination of the sputum showed an abundance of diplococci present. The laboratory report further stated that it was difficult to type, but the conclusion was that it was type four diplococcus. This did not present a favorable outlook for the use of any serum, but as there was a

slight uncertainty about the type we decided to give the polyvalent antipneumococcus serum. The first dose of 50 c.c. reduced the temperature from 103 to 101. Twelve hours later we gave another dose of 50 c.c. of the same serum which brought the temperature down to 100 within six hours. It looked then as if the patient were beginning to convalesce. Twenty-four hours later, however, he became cyanotic, both lungs became œdematous, and the heart dilated. The temperature, however, was only 101, respiration 36, pulse 126. We decided to take a small amount of blood from the arm before giving any more serum. We took about ten ounces of blood from the vein and followed this with 50 c.c. more of serum. Again the patient improved, the dilatation of the heart was relieved, and the œdema of the lungs partly disappeared. Twenty-four hours later, however, the œdema suddenly returned, cyanosis became more marked, the temperature went to 104, and he died within six hours.

In considering this case, one is reminded of the somewhat classical statement made by Ross and Hund, "There was a vasoparesis, blood destruction (leukopenia and lessened coagubility) and the patient expired from a drowning process and respiratory failure."

Case 15.—Man, aged 76. Friday evening, in the eighth day of his pneumonia, extensive area of bronchopneumonia involving practically all of the right lung and part of the lower lobe of the left, temperature 104, respiration 30, pulse 110 and irregular. He had suffered for years with organic heart disease and irregular pulse. Not having any human serum on hand, we gave him 50 c.c. antipneumococcic serum on our first visit. This had no effect on temperature or other symptoms. The next afternoon we secured a good quality of pooled immune human plasma and at 9 p. m. gave him 110 c.c. This produced a severe febrile reaction, chill and fever. The temperature quickly subsided and by noon the next day, fifteen hours after the serum was given, his temperature was 100 and he seemed better in every way. That afternoon, however, his temperature suddenly went up to 104 and œdema of both lungs suddenly developed. He died at midnight of the same day. This is a case in which the human plasma produced a marked effect after the polyvalent proved valueless. Perhaps we might have saved his life had the plasma been used earlier in the disease. It may be noted that we were dealing with a double massive pneumonia in a man of 76 with organic heart disease, and serum administered late in the disease.

Case 16.—Female, aged 35. Patient had considerable exposure February 21st, driving her car twenty miles in a cold sleet. She had a chill that night followed by continued high fever. I saw her in consultation on the evening of the 23d and found consolidation in the lower lobe of the right lung. Considering the physical signs and history, it appeared to me a straight pneumococcus infection. I gave her, therefore, 50 c.c. polyvalent antipneumococcus serum. Was rather surprised to find that this made no impression upon her temperature or other symptoms, so on the evening of the 24th I gave her 100 c.c. of human plasma. This had the desired effect and within twenty hours her temperature was 100. It afterwards went as high as 101, but soon came down again. Perhaps this serum ought to have been re-

peated, but this was not done chiefly because my supply was limited. Within three days, however, her temperature was normal and remained so for three days. After that it rose somewhat gradually for 24 hours, at the end of which time she began having septic chills and fever followed by profuse sweats. Previous to this she had been in her home. We at once took her to the Sanatorium and began looking for the focus of infection. The paroxysms of chill and fever came with considerable regularity about every fourteen hours. They continued for about a week, then gradually became less severe and less frequent. I naturally suspected empyema or lung abscess. The X-ray picture taken on entrance looked more like a delayed resolution, with possibly an abscess forming at the root of the lung. A picture taken several days later showed that resolution was progressing and there was less indication of an abscess forming.

A short distance below the angle of the scapula a small area of flatness was found which suggested the possibility of a limited collection of fluid. An exploratory puncture was made and a drachm of thin seropurulent fluid extracted. This contained a few pus cells but it was sterile and could not be taken to explain the septic paroxysms. Abscess of the liver or kidney was thought of, but there were no local signs to indicate either. After about twelve days of this septic condition, with improvement of all symptoms continuous after the first week, the explanation of the sepsis came rather suddenly, with a sharp pain in the right side followed soon afterward by the discharge of a thick purulent urine. This was an indication that we had been dealing with an abscess of the kidney, but up to this time there had been no soreness or pain in that region. The leucocyte count had during this whole period ranged around 20,000. Pus continued to flow from this kidney and soon a cystitis was developed. Fortunately, both conditions responded to treatment in a rather surprising way. After the pain and soreness in the kidney had disappeared, and the pus reduced to a very small amount in the urine, I had the ureters catheterized and the urine was found free from pus on both sides. Only a mild cystitis remained, which yielded promptly to treatment.

COMMENT

(1). The intoxicant of influenza acts primarily on the central nervous system, especially medulla, the vasomotor and respiratory centers, and produces a destructive leukopenia. Lower resistant powers obtain and predispose to infection of the lungs by various organisms. Bronchopneumonia of a fulminant nature has been, perhaps, most common.

(2). Theoretically, immune serum corrects this intoxicant and its complications. This view confirmed by clinical results.

(3). Influenza patients having a continuous high temperature over four days, or who have a secondary rise of temperature following soon after influenza, should be regarded as probably developing pneumonia. This is the most favorable time for beginning serum treatment.

(4). Used early, we may expect immune serum to anticipate the crisis or produce an early recovery by lysis. In McGuire and Redden's

cases 83 recovered by crisis and 55 by lysis. The majority of my cases recovered by lysis.

(5). In cases where diplococcic pneumonia are the predominating organisms, stock antipneumococcic serum is of great value, especially of types one, two and three. Under analogous conditions, antistrepticoccic serum may be used, but its value is not so well established.

(6). Pooled human serum or, preferably, citrated plasma gotten from several convalescent patients should be taken within one to four weeks after recovery.

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DISCUSSION

Dr. O. B. Ross, Charlotte: I want to rise to say a word of praise for this piece of work that Dr. Munroe has done, because I have seen Dr. Munroe do most of it, and I know how hard it is to get serum from patients who are not in the best physical condition. He has worked hard and he has had an open mind in his effort to find out something for these people who have been dying. We have had our patients die and yet were unable to do anything. My interest in this matter was first aroused by a case of mine which seemed to lend itself readily to this logic. The case was the wife of a man who was just convalescent from influenza. Certainly there was some basis for the hope that he might have some antitoxic bodies in his blood, and that we might transmit these to the wife.

Just before this the work had been done in the Boston Hospital. There they had used the human serum. I used the whole citrated blood the first few times. Then Dr. Barrett of Charlotte perfected his technique of separating the human serum and subsequently I used serum or plasma instead of citrated blood. The process of giving it is thus simplified.

My experience in the late epidemic includes about forty cases of pneumonia. Eight of these died. Some of the cases that seemed to me to be most unsatisfactory were the very ones that got well. I remember one woman with a severe influenza, temperature 102-103. On the fourth day a bronchial pneumonia suddenly revealed itself with all the classical signs. We gave her human serum and within eighteen hours her temperature was normal. I think this woman was doomed without the serum, for she was already getting cyanotic.

The status of the pneumonia serum in type 1 cases has been fairly firmly established. To see a strong man of 200 pounds toxic to the last degree in the early stages of pneumonia, and in eight hours see him a practically normal man, is certainly very phenomenal.

METHOD OF PREPARING THE HUMAN CONVALESCENT SERUM AND PLASMA

H. B. Barrett, M.D., Pathologist, Charlotte Sanatorium

The original method of McGuire and Redden for the preparation of convalescent serum for the treatment of influenzal pneumonia consisted of two steps: First, testing the blood of donor and recipient; second, preparation of the donor's serum. It was later found that no noticeable reaction occurred even though so-called incompatible serum and blood were used, so that this step has been eliminated. The doing away with this part of the method has removed one of the principal difficulties of the whole procedure, for often a willing and otherwise suitable donor would be rejected. This objection does not apply so much in the case of large hospitals where many convalescents are always at hand, but was especially inconvenient in the small hospitals and in private practice.

THE PREPARATION OF THE SERUM

In the original method, the blood was withdrawn from the donor and allowed to clot at room temperature and then placed on ice for twelve hours. The serum was then separated, centrifuged, and bottled. This method has the objection of taking quite a good deal of time, and does not yield as much serum as the method now in use.

At the present time the method in use in the Charlotte Sanatorium is that of the Naval Hospital in Washington, with a few minor modifications of our own.

It is as follows: A Wassermann test is done on all donors. Four or five hundred c.c. of the donor's blood is withdrawn under sterile precautions and immediately mixed with 10 per cent. sodium citrate solution in distilled water. The relative amounts are ten parts of citrate solution to ninety parts of blood. This mixture is at once centrifuged at high speed and the cleared plasma pipetted off and preserved in sterile containers. If the plasma is to be kept more than 24 hours or is to be mailed, one per cent. of chloroform is added. By using this method, serum for the patient may be prepared and given on very short notice, the whole procedure consuming little more than one hour.

BACTERIAL VACCINES

Dr. C. A. Shore, Director State Laboratory of Hygiene, Raleigh, N. C.

The term vaccine, originally applied to the virus of smallpox attenuated to human beings by passing through cattle, has come to mean the modified virus of any specific disease used for inoculation. Some protest has been made to the term as now understood, but its use is generally accepted.

The practical application of bacterial vaccines for prophylactic purposes was suggested by the success of vaccination against smallpox and the Pasteur prophylactic treatment for rabies. The first successful use was made by Pasteur, who immunized sheep against anthrax by the injection of attenuated cultures of anthrax bacilli. In more recent times the whole field of endeavor has been greatly stimulated by the monumental success of the prophylactic typhoid vaccine.

The rational application of bacterial vaccines as specific prophylactic or therapeutic agents requires a correct diagnosis, but this is often difficult, and sometimes impossible, with our present knowledge and technique. It must be remembered that our bacterial names refer in many instances to a group of related organisms, whose relationship may be little more than the obvious one of form, while at the same time there may be little or no immunological relationship. A good illustration of this point is the group of pneumococci.

The protection afforded by the injection of these vaccines is associated with a rise in the specific antibodies in the blood. It is probable that other factors are included, because immunity may persist long after the demonstrable antibodies disappear. This is illustrated by the Widal agglutination reaction following injection of typhoid vaccine. A positive reaction can usually be obtained for a few weeks only. The immunity persists in a diminishing degree for several years.

The use of vaccines as therapeutic agents during the course of a disease is based on the conception that the body cells are not producing antibodies to their full capacity and that the vaccine will be an added stimulus. This conception is primarily correct, but in practical application many difficulties occur. In the first place, the full production of antibodies does not begin immediately, and some days are needed for full effect. This fact would indicate that vaccines would be more beneficial in subacute and chronic diseases than in the more acute, and this is generally true. Then again, vaccines can not theoretically be expected to do more than stimulate production. They can not create antibodies where they do not already exist. In septicæmias, where bacteria are multiplying in the blood, only failure may be expected.

When we come to study the records of the practical use of vaccines in treatment we find many contradictory reports, and in the great majority of cases their use is suitable only in selected cases. For instance, it is not advisable to treat all cases of gonorrhœa with vaccines, but their use is justifiable in certain chronic conditions, particularly in arthritis. In pertussis it is always well to try the vaccine, though in many cases no benefit is reported. In acne and furunculosis good results are usually obtained.

It is in prophylaxis, however, that the greatest triumphs have occurred. It should always be borne in mind that no artificial immunity is absolute, and the protection afforded by a vaccine may be overcome by an overwhelming invasion of bacteria. The control of typhoid fever, for example, calls for general sanitation, particularly the proper disposal of excreta, as well as immunization by vaccine. Neither weapon should be neglected, but it has been my observation that the family or physician who neglects one neglects the other, and where vaccination is practiced you may there expect the best general sanitation.

In pertussis some protection is undoubtedly afforded by prophylactic vaccines, but it is difficult to estimate the degree.

Very promising results are reported in pneumonia and there is good hope for successful prophylaxis. Of particular interest at this time are the influenza vaccines. Many different ones have been used, and with contradictory results reported in all cases. Until the primary infecting organism is found we can scarcely hope for a successful vaccine. It is certainly irrational to expect to immunize against a disease with a vaccine made from the so-called secondary invaders.

Just a few words concerning the types of vaccine. The type in most general use is that made from killed bacteria suspended in normal salt solution. Recently the United States Army has used a lipovaccine, which is a suspension in oil and which has the merit of slow absorption. Large doses of bacteria can be given and the immunization against typhoid fever has been attempted with one injection. The advantages are obvious, but the practical difficulties of preparation are great, and just at present the Army has returned, for a time at least, to the saline vaccine.

Other forms of vaccines, made from bacterial extracts, living bacteria, and bacteria sensitized with immune sera, have also been extensively used. Polyvalent vaccines containing different strains of bacteria are in certain cases advisable, but such mixtures should have an immunological basis. The so-called mixed vaccines are usually merely a "shotgun" prescription.

In conclusion, I want to refer to the little understood nonspecific action of bacterial vaccines. I have said that the rational use of vaccines requires a correct bacteriological diagnosis, so that the vaccine can be made from the infecting organism, and this is true in general, but in certain cases there is an undoubted and prompt curative response to the intravenous injection of nonspecific substances. For instance, intravenous injection of vaccines—the typhoid vaccine being most often used—has been reported as beneficial in gonorrhœal arthritis. In a case which happened to come under my own observation I have seen a prompt clearing up of psoriasis following an intravenous injection of one and one-half c.c. of typhoid vaccine. In these nonspecific responses a resultant chill and rise of temperature seem to be essential, and it seems the injection must be intravenous. The complete explanation is not known, but there is a resultant leucocytosis, and it has been claimed also a production of nonspecific ferments in the blood which have a destructive action on the toxins in solution.

We may confidently expect many new discoveries in this field, and it is possible that all our present theories may be upset, but, at any rate, we can continue to take advantage of those whose beneficial action has already been proven.

SURGERY

RADICAL CORRECTION OF CLUB-FOOT

Dr. L. N. Glenn, Gastonia

The subject of club-foot is as old as Hippocrates would have been had he lived to the present time, and yet we are far from a satisfactory solution of it.

There are, of course, various types of it, and each type presents certain phases differing essentially from other types. The congenital true deformity is to be distinctly differentiated from the paralytic forms acquired either before or after birth, and subsequent treatment applied accordingly. For many years we have been taught to manipulate and to instruct mothers to manipulate and train the feet in the right direction, but these efforts are practically always attended with complete failure. Various forms of splints, bandages, adhesive plaster, etc., have from time to time been recommended but these too are certain to be followed by disappointment. The foot steadily grows in its faulty position until the child is old enough to walk, and then it is further forced in the wrong direction by the child's own weight.

These palliative measures may be justifiable, but I mention them to condemn them more than to suggest their employment. Operation—radical operation—is therefore advised, and this may be done while the child is still quite young.

In the true equinovarus form, which is the most frequent, we should always have an X-ray picture of the bony arrangement to begin with as a guide. The child should be properly prepared for operation, anæsthetized and a free incision made from about the point of the outer malleolus curving downward and forward to a little beyond the base of the fifth metatarsal bone. Carefully preserve all important blood vessels, nerves, and tendons. Expose the bones of the tarsus and estimate the amount of destruction necessary. The cuboid bone is sacrificed, frequently the navicular, and often the side of the anterior end of the os calcis, or even the bodies of the external and middle cuneiform and possibly the base of the fifth metatarsal. The foot then easily drops back in a straight line and after the tourniquet has been removed from the leg and all bleeding has been stopped the foot is tacked in its new position with a few interrupted chromic stitches and the skin closed with silk after cutting away the redundant flap.

The foot will now remain in this new position without any forcible restraint whatever, and after a quite rapid healing the child is allowed to get right up on it and walk on it as soon as it can be encouraged to do so.

We very seldom have infection in these cases, and healing by first intention is the rule. The child puts on a straight shoe like other children and treats his new foot like a well one. Phelps, Little and others prefer to do the inside operation by lengthening the short side of the foot rather than shortening the long side. I did a few cases that way, but was disappointed with my results and abandoned it.

They argue that the outside operation will be followed by a short, stump, ankylosed foot. We shall certainly have a short, stumpy foot, but no ankylosis if the proper technique is carried out. In order not to have this ankylosis it is very necessary that the articular surfaces of the bone distal to your operating field be preserved. Do not take out the bone in its entirety but carefully cut it so that its body may be removed and leave its articulating surface. Back up raw bone to raw bone, with an articulating surface too near this new bony union to allow any stiffening.

This gives a good weight-bearing foot, and if the line of gravity is also kept in mind while operating the foot will be under the child rather than to one side.

A light protecting splint of woven wire or pasteboard is used for a few days after operation. This is for protection and not for restraint, remember. No correction will be satisfactory which requires restraint to keep it in place, and no foot is corrected which must be kept in place, after all healing has occurred, by any kind of orthopædic appliance whatever. The foot, to be called corrected, should hang free in the proper position with the child sitting on a table and the foot in midair.

Many operators leave the tendo Achillis untouched, but I am of the opinion that every case of this kind should have this tendon severed from its inner insertion, split up about an inch and a half, and the severance completed but going out on the other side. Elongate the heel by slipping the tendon segments on each other and tack them back together.

Always make the skin incision not over the tendon but well to one side, so that the tendon will be well covered with the consequent flap of sound skin. Occasionally a subcutaneous section of some of the plantar fascia may be done, but as a rule I am opposed to blind surgery.

In some cases it is perfectly all right to transplant the inner half of the tendo Achillis to the outer side of its own outer side, either stitching it into the periosteum or slipping it under a chip of bone raised with a chisel and tacked back down with a small nail. These radical operations have nothing like the same tendency to relapse that we have in the palliative forms of treatment, and many of them remain equally as straight as any normal foot.

The operation for the correction of the valgus type is of course simply the opposite of that for the varus—shorten the long side of the foot, whether it be the inside or the outside.

The paralytic forms are not attended with the same degree of satisfaction and success as the true deformity type. In these cases we have to do tendon shortening or transplantation, and none of us can boast of many flattering successes with tendon surgery.

To summarize, always promise a better foot than you have to begin with—in fact, you may promise a good weight-bearing, shoe-wearing foot, but do not promise a perfect foot. Go at the whole procedure fearlessly and freely. Get correction without restraint.

DISCUSSION

Dr. J. A. Burrus, High Point: This is intensely interesting, because it does seem that we are getting a number of these cases. I think there are about three periods at which we get them. The first is when the child is very young, and before ossification has taken place. Then there is another class of cases that we get just at the beginning of ossification, and still another in which complete ossification has occurred. When children have gone on for years with this deformity, as a result of the deformity they have atrophy of the leg. In the last class of cases, it seems to me that the best way is to take out a section of the cuboid and separate the tendons and also the plantar fascia and overcorrect the deformity. In the class of cases that you see in about the first year and a half of the child's life, before perfect ossification has taken place, by applying a Jones wrench, after manipulation and separation of the tendons, you can throw the foot into perfect form and be able to hold it there. In very young infants, where you have none of the bones ossified except perhaps the os calcis and the astragalus, then perhaps by separating the tendo Achillis and the plantar fascia, you can produce an overcorrection and in many instances correct the deformity. I have in mind at this time three cases that we are handling. One is an infant of only four months, and by putting on a heavy wrench, after separating the tendon, and overcorrecting the deformity with this wrench, we have been able to get good results. The second case is a case that had to be separated and overcorrected. The third case was one in which ossification had taken place, and in this case the operation was endeavored to be done as represented by the speaker.

The point that I want to emphasize is the importance of handling these club-foot babies early. Do not wait for two months or three months or four months or six months, but help us to get the baby as soon as it is born, and then correct the deformity.

Another point I might mention is the point of forced restraint. Oftentimes, on account of an improperly fitting plaster of paris cast we shall have a very great deal of trouble. I think Mr. Jones' idea in these cases is very fine, and it is a lesson we would do well in applying—*i. e.*, to use splint in preference to the plaster of paris cast, and examine it frequently to see that we are correcting the deformity.

THE BARREL-STAVE SPLINT IN FRACTURE OF THE CLAVICLE

HUBERT A. ROYSTER, A.B., M.D., F.A.C.S., RALEIGH

I have the privilege of demonstrating what I believe to be a very important contribution to the treatment of fracture of the clavicle. But, at the outset, I desire to disclaim any originality for the barrel stave. In fact, I disavow any credit for it, except that of seizing instantly upon a good idea when it was presented to me. The method in question was called to my attention in 1917 by Dr. L. J. Arnold, of Lillington, who stated that Dr. John A. Bodine, of New York, now deceased, had commended it to his post-graduate classes. In reply to my inquiry Dr. Bodine wrote as follows:

"*In re* the barrel-stave splint for fracture of the collar bone, all the information that I have about it is that on a trip to Texas many years ago a doctor in Cameron, Texas, showed me the splint on a small boy, and said it was devised by Dr. Spohn, of Corpus Christi. This lad in Cameron was trying to climb up a small tree, and to my surprise he had not dislodged the splint and no bad result followed the effort. We have used it in our clinic on a great number of cases and always with entire satisfaction. We have since had a splint modeled in metal with a sliding central joint so as to make it fit different widths of chests; but, of course, this takes away one of the attractive features—that the old barrel stave can be quickly found and applied anywhere in the country. It fulfills all the indications, to my mind, with the exception of a tendency of the shoulder to fall downward, so that we have not used it in grown people with heavy muscular or fat shoulders. It has never been written up and never been published, so far as I know, and I think it would be a good thing for you to make it better known."

A letter to Dr. Spohn received no answer.

The best way to show this splint is to put it on before you. I have brought a barrel stave with me, and have had the carpenter here saw it off. The center of the stave is found, and this should be placed over the center of the patient's manubrium, at the suprasternal notch. The stave is then sawed off at each end to fit just inside the head of each humerus while the shoulders are drawn backward. One inch from each end, a

nail is now driven into but not through the splint. The splint is then padded with cotton, retained by a bandage, and placed in the position as first measured, the concave surface being next to the chest. While the splint is held in place and the shoulders kept firmly back, bandages are tied to the nails, carried under each axilla (Fig. 1), and crossed on the back in the figure-of-eight fashion (Fig. 2). As many turns are made and the stave is drawn as tight as necessary. If there is a tendency of the splint to turn or to slip, adhesive plaster may be applied to reinforce the bandage, but it is rarely needed. If the patient is a heavy, muscular subject, the arm is put into a sling.

Fig. 1. Front View, Showing Barrel-stave Splint (Padding Omitted)

The appealing quality of this dressing is its comfort. The patient may use his hands and forearms at will without disturbing the fragments, and he is relieved of the distress which the older dressings give. The Velpeau, Desault, and Sayre methods are, to say the least, very uncomfortable, while they are, without doubt, difficult to apply and still more difficult to retain. I have treated six personal cases with the barrel stave; three more have been treated by one of my associates, and several cases by different colleagues. Invariably we have been pleased with the splint and satisfied with the results. One of my cases, a college

athlete who did not take the trouble to wear a sling, was injured in December and went back into the pitcher's box in March. A blacksmith from a distant town, who returned home immediately after the first dressing, found that it was slipping. He was not satisfied and, being a good mechanic, went to his shop, fashioned two baby carriage springs, and put one in front and the other behind, joining them at each shoulder by a small iron band. The adjustment was perfect and the final result all that could be desired. This suggests that two splints may be used, or that other material will suffice. But the barrel stave you have with you always.

Fig. 2. Rear View, Showing Crossed Bandage

Undoubtedly the prevailing methods of treating a fractured collar bone have not given good results, perfect adjustment, or abundant satisfaction to any one of us. Until I came upon the barrel stave method I had looked in vain for some plan by which a broken collar bone could be held in place and yet give no discomfort to the patient. I am compelled to say that there has been a disposition to follow teachers and textbooks too slavishly, and that certain principles supposed to be vital in the matter do not exist at all. For instance, we have been told that the deformity in fracture of the clavicle is produced "by the action of the powerful muscles attached to the scapula." But you will find that it is

due not so much to the pull of muscles as it is to the dropping downward and inward of the shoulder by its own weight. Dowden,* of Edinburgh, has directed especial emphasis against the textbook descriptions of the pulling of groups of muscles as the essential cause of displacement in some fractures. He considers force as the factor in displacement, and criticises unfavorably attempts to put up fractures in special dressings, whereby it is hoped to obtain the benefit of muscular pull or to neutralize the effect of muscular action.

This comment applies with singular fitness to fracture of the clavicle. We know that the proper position of the girdle of the upper extremity is obtained by throwing the shoulders backward, and not by elevating them. Indeed, any attempt to elevate the shoulders will result in an exaggerated position, and will actually push the fragments out of line when the clavicle is fractured. Yet in the usual dressings advised for this injury the chief object seems to be elevation of the shoulders. The real problem is to throw the shoulders back and keep them there—a procedure which securely replaces the broken ends. The barrel stave does this and nothing more.

I ask your earnest attention to this simple method of handling a common injury, with the expectation that, unless you have been better pleased with the older, more complicated, and more uncomfortable dressings than I have, you will adopt the use of the barrel-stave splint with much pleasure and satisfaction.

DISCUSSION

Dr. Addison G. Brenizer, Charlotte: I am very much pleased to see this simple method, especially that of applying it across the chest. For many months we used the T splint, made out of simple material. We cut it off as we needed it, and put the long portion of the T running down the back. The long T was extended to the waist, and the shoulders could be elevated or lowered. With either method you get the rigidity you want. Dr. Royster is overwhelmingly right about those wrapped-up things that go around the shoulders. It seems to me that they increase the deformity instead of correcting it. Your first impression, I think, in almost all of these splints and fracture apparatus is that the man is too loosely strung, but this is not the case. After the experience of surgeons in the war, it seems to me almost a crime now to stick an encasement of plaster on fracture of the femur, as we all have done.

Dr. B. H. Hackney, Lucama: My earliest experience with fracture of the clavicle, as a country practitioner, came before I had been practic-

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ing a hundred days. I came across a negro who fell from a wagon, and had fractured the humerus near the middle. The fall had also fractured the clavicle on the same side. I reduced the fracture of the humerus, and then the next thing was the fracture of the clavicle. I reviewed all the methods I had ever heard of, without comfort. Finally, I picked up a straight board, laid it across the chest, put a pad under each end, and fixed it with a figure-of-eight bandage and trusted in the Lord for the results. When I removed it, five weeks later, I found the clavicle united.

Just after I had been talking to Dr. Royster in September, 1918, about this barrel-stave method of treatment, I had the usual triad of fractures of the clavicle. One was a twelve-year-old girl who was taking music lessons, and the parents were more than usually anxious for perfect results. For her I used the barrel-stave splint, and told her not to practice for two weeks. After five weeks I removed the splint, and found perfect adjustment, but I learned also that she had been practicing every day. Early in October I had a man who weighed 280 pounds and was working at a saw mill. He had fallen from a box car. This man was well muscled. I used the barrel-stave on this case, and kept the hand in a sling for two weeks. I let the splint stay on for six weeks, and I do not believe that anyone can tell now which side was fractured. Next, a little boy fell off a wagon and fractured the humerus, and the wagon ran over the clavicle at the junction of the middle and outer third. I fixed up the humerus in the usual way, and put a curved splint on for the fracture of the clavicle.

I think that I can say that the barrel-stave apparatus for the fracture of the clavicle is the most practical thing I have ever seen in the ordinary practice of surgery.

Dr. C. M. Strong, Charlotte: I am sure that we are under a debt of gratitude to Dr. Royster for his exposition of this splint. In my experience I have been woefully disappointed in the other methods. For the last two years I have done the open method operation, *i. e.*, cut down on fracture, lap over the periosteum and fascia with catgut, which holds it in good position and with very little deformity, and have had good results. It is not very hard to do, but I did it only in self-defense. Hereafter I shall be glad to try this simple method.

Dr. L. N. Glenn, Gastonia, Chairman: I would like to ask Dr. Royster how this splint would work in cases where the outer end of the clavicle is torn from the acromion?

Dr. Royster, closing discussion: I will answer Dr. Glenn's question by saying, "I don't know." I have never tried this splint in disloca-

tion of the clavicle. I hardly think it would fulfill all the indications, yet I do not see why it should not be tried. That is a very, very troublesome kind of thing to handle. You wonder whether you shall do something or nothing, and often end by doing nothing. My cases have nearly always turned out very well.

I wish to emphasize Dr. Brenizer's position on the uselessness, oftentimes, of splints on any fractures. The tendency has been, in the last few years, to use splints as little as possible, and this has been augmented by conditions arising during the great war. I am firmly convinced that Colles' fracture is in no need of any fixation apparatus. We know that in fracture of the femur we seldom need anything but rest for the whole limb. Many years ago the French surgeons called attention to the fact that there was need of slight motion between the ends of the fracture to get good results. When we put a limb up so tightly, we sometimes do damage to the soft parts. A surgeon in the Royal Edinburgh Hospital has become such an iconoclast that he states that no fracture ever needs a splint. Of course, I do not think that we should go as far as that at the present time, nor do I believe that what I have presented here is the only method of treating a fractured clavicle. I concede, of course, that the barrel-stave might be placed behind in some patients, instead of in front, or it might be better to use the T splint; and it might be possible, in many cases, to hold the shoulder back by a strap or bandage, without anything in front. The possibilities and variations are manifold. I do, however, insist that this method will do away with many bad results, with discomfort on the part of the patient and with trouble on the part of the surgeon. At any rate, it is so interesting to me that I eagerly sought the chance of using it, and have been satisfied.

FRACTURES OF THE PELVIS AND TREATMENT, WITH REPORT OF CASES.

Dr. Eugene B. Glenn, Asheville

Mr. President and Gentlemen: Fractures of the pelvis are not uncommon injuries and, previous to the use of the X-ray, they were not discovered or treated in the majority of cases. Fractures of the pelvis include the entire pelvis or any of the three bones composing it, viz: the ilium, ischium, and os pubis. These bones are rarely broken except by extreme forms of violence, high falls, runover and crushing accidents. Frequently the associated visceral and blood-vessel injuries result in fatality.

Clinically, there are two divisions: (1) With intrapelvic injury, (2) without intrapelvic injury. Associated with intrapelvic injury is rupture of bladder, urethra, kidney, intestines, or iliac veins. These conditions should always be looked for, and when found they usually are of more importance than the fracture itself, and should receive the first consideration.

The pelvic bones are generally considered inaccessible, but with a systematic anatomical examination, especially if associated with a digital examination by the rectum and vagina, practically all parts of the pelvic bones may be palpated.

Examination.—Examination should be systematically made, in order to cover thoroughly the injured bones of the pelvis. After this is done, an X-ray examination should always be done, to make sure. Catheterization to assist in determining the presence of an injury to the urinary tract should always be done.

Fractures of the ilium are not unusual. Fractures of the pubic portions of the ring are the most common, and are usually associated with other fractures or separations of the bony surfaces of the pelvis. Injury of the urethra is common in this fracture. Fractures of the pelvis usually heal in four weeks.

TREATMENT

After attending to all visceral damage and all necessary reductions of displacements, apply an adhesive swathe, four inches wide, encircling the pelvis, for the purpose of immobilizing the fracture. The adhesive surface of the swathe should have a gauze coating or covering over every six inches out of ten, as the remaining four inches are sufficient to hold the adhesive. This lessens the discomfort and irritation to the skin. If the fracture is of the ilium alone, the swathes should be applied loosely enough to avoid displacing fragments of the crest inward. Scudder states that "The patient should, in all cases, except simple fracture of the ilium, be placed upon a properly fitting Bradford frame. Upon this frame, and in no other way, can the patient be comfortable. The bedpan can be adjusted with ease, without disturbing the fracture. The bed can be most readily changed and the patient kept clean and comfortable." Wiring or suturing of the fracture may be entertained and practiced if the comminution or displacement of fragments is great. Some recommend a flexion of the knees and a plaster of paris swathe or cast including the knees, thighs, and waist, for the purpose of holding the knees flexed.

The object of this paper is to demonstrate a simple, practical, comfortable, and efficient method of keeping the patient comfortable, getting the desired results, and making the nursing and cleansing of the patient easy. After all necessary examination and after treatment has been applied as mentioned above, the least strain on the point of fracture of the pelvis is obtained by flexing and abducting the knees and by the use of a full sized bed sheet, folded across two long corners, as shown in the accompanying photograph. The sheet swathe is placed under the flexed thighs of the patient (with, for comfort, a cotton pad between the knees, and for security, a figure-of-eight bandage over the front of the knees and below the sheet swathe, to hold it up and prevent

its slipping backward toward the buttock) and at the ends of the sheet are tied to the head of the bed. This forms a hammock for the patient and makes the simple raising of the hips for the bedpan and cleansing easy, because the patient is raised and lowered against the same pressure in the hammock, without pain or discomfort. You can readily see that the bringing up of both knees flexed at the same angle would facilitate easy approximation of fragments. By this treatment, you are not bothered by discomfort of plaster cast or Bradford beds, etc. I have used this mode of immobilization in a number of cases with the most satisfactory results, and I can heartily recommend it to you.

Case 1.—Mrs. P., age 35, referred to me at the Meriwether Hospital by Dr. Cheeseborough, reared in Kentucky, accustomed to handling thoroughbred horses, mounted her mettled saddle horse one morning. The horse reared on his hind feet and fell backward on the patient in the saddle, separating the symphysis pubis, fracturing the ramus of the right side and the ascending

and descending ramii of the ischium, with a slight sacroiliac cynchondrosis. Under a general anæsthetic, the synchondrosis was reduced and the fragments approximated in the usual manner and adhesive applied, with pillows bandaged under flexed knees. The pillows interfered with the care of the patient and did not prevent pain upon motion. It was suggested by the nurse in attendance, Miss Foister, who lost her life in the flood in Biltmore village in 1916, that a hammock made of a sheet would give the desired results and all the conveniences in the care of the patient. This was so practical and easily applied that we did away with the pillows and followed this suggestion. In the fractures of the pelvis since that time, coming under my care, I have used the sheet hammock. Mrs. P. recovered without a limp, shortening, lameness, sciatic or sacroiliac pains.

Case 2.—Mr. E., age 38, logger by trade, referred by Dr. English, of English, N. C. While "snaking" down three logs, each one chained to another, with two mules pulling in front, the logs made a rush down the mountain, throwing the mules. One mule fell on the patient, which, he remarked, did not hurt him. While Mr. English was down, he was overtaken by the logs and caught between one of the logs and a tree. He sustained a fracture of the ilium and ischium, a complete separation of the symphyses, with a displacement of more than four inches, and the sacroiliac joint separated with a dislocation of the ilium up two and one-half inches. The parietal peritoneum and bladder were pushed forward into the interspace. The accident was twenty miles from Asheville and happened at six o'clock in the afternoon. The roads were so bad that he had to be brought half the distance on a sled, with four mules attached and two extra mules for a relay. At the end of the first ten miles, they secured a motor truck and the patient arrived at the Meriwether Hospital, in Asheville, at six o'clock the following morning, after having been on the road all night. The patient was suffering extremely from shock, caused by the injury and loss of sleep. Operation was postponed for twenty-four hours, hoping to get patient in better condition. At the end of twenty-four hours, he had developed a peritonitis, had been unable to void, and was vomiting everything, even water. The operation consisted in readjusting the fragments, wiring symphyses, applying adhesive and placing him in bed in a sheet hammock. The patient never vomited after the anæsthetic, never had to be catheterized, and made a good recovery.

Case 3.—Master M., age 18, referred by Dr. Terrell, now deceased, of Black Mountain. While trying to go from Black Mountain to Ridgecrest, boarded a freight train at night, and, thinking that the steel coal car was filled with coal, attempted to go forward on the cars and jumped into the car, only to find that the car was empty. He landed astride of a bar of iron in the bottom of the car, fracturing the ramus, separating the symphyses, cutting the membranous urethra completely in two. He was brought immediately to the Meriwether Hospital, after the doctor failed to enter the bladder with a catheter. A general anæsthetic was administered and after all efforts to find the posterior severed end of the urethra had failed, a suprapubic opening was made, a catheter was placed forward into the wound and then passed on out through the anterior severed portion of the urethra, and the wound sutured, with drainage. The catheter remained in the bladder from three to four weeks and was then withdrawn. The passing of bougies was started

soon after, and today he can take a 32 French sound without difficulty. Adhesive swathes and sheet hammock constituted the remainder of the treatment. His recovery was complete.

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SOME OBSERVATIONS ON PLASTIC AND ORAL SURGERY AS SEEN IN THE A. E. F.

Dr. C. W. Banner, Greensboro

In the recent great war through which we have just passed, I think the statement could be made without reservation that no branch of surgery has made more advances than that of maxillo-facial or plastic and oral surgery. This, probably, is due largely to three causes:

First, the great *number* and *variety* of face and jaw wounds that we were called upon to treat.

Second, the great number of qualified and specially trained men who have been engaged in this work.

Third, the *coöperation* of the surgeons and the dentists in treating these very complicated cases.

The fact that there has always heretofore been a comparatively small number of wounds of this region has made it impracticable for many surgeons to give special attention to oral surgery, and as a consequence the operative procedures for wounds in this region have, previously, to some extent been neglected.

Trench fighting and the very free use of artillery and high explosive shells during this war has brought to *us* (and I have reason to believe *especially* to the Germans) an unusual number and variety of wounds about the head, face and jaws, and has given us unusual opportunities to try out some of the old methods and procedures, and to originate new ones suitable for the cases in hand.

Another factor that has contributed largely to our success in these cases has been the improved technique, and the extended knowledge, in the use of *local anæsthetics* in these cases. One of the great drawbacks to our work in this line was the danger of pneumonia from inspiring septic material into the lungs from these foul wounds about the respiratory tract. Now we can do almost any operation required about the face or jaws, with local anæsthetics, with very little pain, depression or shock to the patient, and frequently with very great convenience to the

operator. Wounds now, if proper technique is followed and proper surgical judgment displayed, are delayed in healing very little if at all by the use of local anæsthetics, and there should be very little swelling of the tissues, very slight shock, and very little after-pain following the operation. In our own work we used one-half to one per cent novocaine for infiltrating the tissue, and where nerve blocking seemed indicated a two per cent solution was used. The solution should be fresh and should be sterilized by boiling, just previous to use. The skin and mucous surfaces must, of course, be sterilized the same as for operations under a general anæsthetic. The principles of modern surgery, with such modifications as seem called for in the special case in hand, must be carried out with the greatest care. Among these principles I believe I would mention in the order of their importance:

First, surgical cleanliness.
Second, immobilization.
Third, dependent drainage.

Surgical cleanliness does not differ in these cases from surgical cleanliness in other regions of the body, except that it is often more difficult to attain and maintain owing to the great number of communicating cavities about the mouth, nose, sinuses, etc. For very many septic wounds that came to us not only were infected along the tract of the wound, but were complicated by some old chronic infection from the nose, throat, teeth, or one of the communicating sinuses which added very greatly to the difficulty of the cases.

With regard to immobilization, I would say that it was just here that the coöperation of the dentists came in. A very large percentage of our cases came to us with fractured maxillæ or mandibles or else with a great part of these bones shot away, and by getting the jaws properly splinted, with the remaining parts, if there be any, in their proper position and relation, we were frequently surprised to find how some apparently hopeless cases came through with useful jaws and with remarkably little deformity. Some of the splints used were very ingenious, and I want to say that the spirit of interest and coöperation shown by all the dentists in the sector where I worked was splendid and commendable.

In regard to *dependent* drainage, I think that it, as a surgical principle, applies with peculiar interest in the wounds and injuries about the face. This is especially true about wounds in the *lower* part of the face where, if they have not this dependent drainage, the infection is inclined to extend downward and get in between the bands of fascia in the neck and extend on down into the mediastinum with frequently dis-

astrous results. We never hesitated to make a fresh wound for drainage, in any case where it seemed necessary, and usually could make it under the chin or along some crease or seam in the skin, where the scar would never be seen or would be almost imperceptible when closed.

Oral surgery, while an *old* art, as practiced during this war has been a comparatively *new* field or specialty, and it met with the usual disfavor that all the special branches of both medicine and surgery usually met during their earlier experience.

We had not been in France long before we were made to feel that this was true, but I am glad to say that this feeling toward us was short-lived, for these wounds were so numerous and so extensive and so difficult to handle that the surgeons and the men in the other specialties soon learned that they needed men especially trained in this work, just as they needed the men especially trained in orthopedic and other special lines of surgery. I think the work accomplished and the success in handling these cases have placed plastic and oral surgery on a firm basis and established it as a true specialty of the healing art.

While the saving of human life is, and should be, the first and prime object of the surgeon, the man who stops short at this and does not attempt to restore both feature and function to all the parts operated on, has fallen short of the full meaning and opportunities of his vocation. We scarcely conceive of how much any individual is handicapped who has some hideous facial blemish or deformity, or who has scars and seams that distort his features and make him look and feel like some gruesome or distorted being, and it is, to say the least, embarrassing to him on all occasions and at all times. Life becomes a burden to such persons, and they avoid crowds and people and keep to themselves. It also interferes in their securing many positions to which they would otherwise be eligible, except for such deformity; and social life is almost barred against them. In the four hospitals where I had supervision and control of this work, we were fortunate enough to be situated only about thirty-five miles from the front, and about half our cases during the latter months of the war came to us directly from the fighting line and we were able to see them and treat them first hand. Many of our cases seemed hopelessly deformed. Nearly all had compound comminuted fractures of mandible or maxilla complicating their wounds about the face. Most of them came with dirty, infected wounds; some had been dressed, others had only received first aid; their nerves were exhausted and the men tired, worn, weak, and hungry from a strenuous campaign of marching and fighting; some weak from loss of blood and from suffering, and shocked from the effect of their wounds. So our first efforts

were largely to try to give them food and rest, then cleanse and dress their wounds, to make them comfortable until Nature could assert herself, and it was very gratifying indeed to see what a little food, a cigarette and a good night's sleep would do for them. No operative procedures were undertaken except in emergency cases to stop a hemorrhage or apply a splint, etc., to a fractured and misplaced jaw, or to remove sharp spicules of bone or foreign bodies that were dangerously near some vital organ or vessel. Next, our efforts were toward cleansing and dressing their wounds and making them comfortable until they were in such condition as to have X-rays made and we could examine and study the case thoroughly, for we must remember that each case was different and every case was a law unto itself and must have treatment entirely its own. As soon as our patient was in favorable condition his wounds were thoroughly cleansed, all foreign bodies removed, together with all dead tissue and loose, unattached spicules of bone, etc., taking care to preserve all tissue that gave any hope of regeneration or revitalization.

The wounds were usually left open and sterile dressings applied, sometimes dry, sometimes with the Dakin packs or Dakin tubes for flushing and draining and often with the use of the Dichloramine T. instead of the Dakin Solution. And just here I want to add a word of commendation for the Dichloramine T. We used it in a great many of our cases and with the most gratifying results. It is necessary, however, to use it freely and that the solution shall be *fresh,* a two per cent to six per cent solution being the strength we generally used. We always got a fresh supply each morning and applied it to the wounds with an atomizer, using clean sterile gauze to pack the wounds. We never packed the wounds tightly and we used gauze sparingly. I think I may also add that it seemed to act better in old wounds after granulation had begun and there was free discharge from the wound. When the wound began to clean up, if all was going well, we began to draw the tissues into their normal position and relation, of course always being careful that the wound should have proper drainage. No plastic operations were undertaken until the wounds were practically clean except at the corners of the mouth, eyelids or vestibule of the nose. I may add that we soon abandoned the custom of depending on the laboratory to tell us when a wound was ready for closure. Any surgeon of experience will soon learn, from observation of his wound and of the condition of dressings removed, when the wound is ready for closure, and I feel sure from our observation and experience that the laboratory findings were no more accurate or reliable than the judgment of an experienced operator. In some of our cases we failed to get union by first intention

but our failures in this line were certainly not greater than when we had depended on the microscope to determine if the wound was clean enough to be closed.

Often we would make no attempt to close the whole wound at once but would close only that part which seemed clean, leaving the remaining part for a future time.

We had very little opportunity to do cartilage or bone grafting in our sector, for in most of our cases we were forced to evacuate the patient to some point farther back of the fighting line before the wounds were sufficiently cleaned up to allow work of this nature, but as all his records and charts went with him, it was easy for the men in the next hospital to take up and complete the work that we had been forced to leave unfinished.

One difficulty that confronted us with many of our wounds about the mouth and nose was the problem of securing mucous membrane to restore lost parts in these regions, and it was usually much more difficult than getting skin to restore lost parts on the outer or skin surfaces, for usually—thanks to the looseness, elasticity, and flexibility of the skin—we had no difficulty in getting skin from the cheek, neck, forehead or temple to cover almost any wound we were likely to encounter. In many cases we were able, and indeed forced, to use the skin (by turning it outside in) to supply deficiencies of the mucous membranes, then secure another flap placed over this to supply the skin surface that had been shot away.

I think that one of the mistakes that we made in our early experiences with war wounds was in trying to close too many wounds by primary suture. Certainly this was true in regard to the face and jaw injuries. A very large per cent. of the wounds that we received from the mobile and evacuation hospitals came to us with their wounds partly or completely closed. Most of these cases showed suppuration, and we were forced to remove the stitches and open the wound up at once for drainage. The patient would be running a septic temperature with all its concomitant symptoms and signs, and feeling and looking quite miserable. And when the stitches were removed and the wound laid open, cleansed and dressed, you were not long in seeing your patient's condition changed for the better, for his temperature would drop, with his relief from pain, and that drawn, pinched expression was soon changed to a smile that would greet you every time you visited his ward.

Another objection to primary suture of wounds is in the greater danger of secondary hemorrhage. The only cases of serious secondary

hemorrhage that we encountered were, with one exception, in the cases of wounds that had been closed. The confined pus caused extending necrosis and ulceration into the walls of one of the adjacent vessels and would be followed by a sudden profuse hemorrhage, which was often difficult to control, and in fact constituted one of the greatest dangers of wounds in these parts.

The argument that primary suture left less scar tissue and prevented shrinking of the tissues was not true according to my own observation and experience. If you, in reality, got union by first intention, this rule might apply, but so many of the cases failed either completely or partially that I am convinced that the procedure, as a wartime practice, was a mistake. If only *partly* successful, then the scar that was left was always so unsightly that a secondary operation was usually required to remove the unsightly scar; while, if left open until comparatively clean, the edges could be so approximated, in most cases, as to leave almost no visible scar.

The work in plastic and oral surgery is not yet finished, but is being carried on in the three hospitals that were set aside in this country for this work. The records and reports are being compiled, and I am sure will add an interesting volume to the literature on this subject.

While the greater part of the work that was done was not new, there was enough original work done to give added interest to the subject of plastic and oral surgery, and I am convinced that many of the old procedures that had resulted in failures will have been eliminated, and that this branch of surgery will have been established on a more substantial foundation, and be regarded with much greater favor than ever before.

DISCUSSION

Dr. Addison G. Brenizer, Charlotte: I have very recently been in a hospital where the great bulk of these jaw cases came back, after the primary operations, for the secondary closures. In the beginning, as Dr. Banner has said, there was an attempt made at primary closure of wounds, which ended in disaster. After that the wounds were left open, usually with a protective dressing. I think the most impressive thing about the jaw is the wonderful power of regeneration, especially with the mandibles. They would remove all fragments and the teeth when the jaw was fractured. A great many of these cases, however, suppurated for a good while, due usually to insufficient removal of bones. I think the jaw man feared to leave considerable space of bone gone from the jaw, but it is really remarkable how this space would fill out. As for the secondary operation for the removal of the scar, that was

very well done with *debridement,* that being the removal of the devitalized tissues. I had had very little experience before the war, but with the surgeons and dentists working together it was wonderful to see what work could be done. Cases with the jaw almost gone, with fragments hanging, when the men came back from the front, were almost wholly restored. The difficulty in some cases of opening the mouth was done away with by packing in little wedges of wood, and gradually opening the mouth in that way.

(In answer to a question by Dr. A. J. Crowell as to the restoration of mucous membrane). We used skin flaps with the skin turned in. In time it becomes moist. Those repairs are remarkable, and they make us feel, as we frequently do, that if it were not for the wonderful repair of the body we probably could not do much surgery.

Dr. Banner, closing the discussion: I have nothing further to say, except in regard to the bone fragments. It was our custom to save all fragments that had periosteum attached. A floating fragment was always removed. Sharp spicules were also removed. We tried to save the fragments so long as they showed signs of life. Sometimes later they would become necrotic and we had to remove them. If we could save them, they served as a nucleus from which Nature would start the regeneration of new bone. Oftentimes we had a very marked trismus in our jaw cases, and we would give them a flat piece of soft wood, about ten or twelve inches long, trimmed wedge-shaped, and let them prize their jaws apart with it. They had nothing else to do, seemed to enjoy the work, and often the results were remarkable.

THE PRE- AND POSTOPERATIVE TREATMENT TO PREVENT RECURRENCE OF STONE FOLLOWING NEPHROLITHOTOMY

A. J. Crowell, M.D., and Raymond Thompson, M.D.
Crowell Urological Clinic, Charlotte.

In reviewing the literature of nephrolithotomy, one is struck with two facts: first, the high percentage of recurrences of stone; second, that no one has offered a definite or plausible plan of treatment to prevent its recurrence.

It is generally admitted that infection, trauma or any condition producing hemorrhage are predisposing causes to nephrolithiasis. The necrosis accompanying infection, or clot following trauma or hemorrhage from whatever cause, forms a nucleus upon which the salts of the urine are deposited.

Much has been written on the subject of pyelitis and its treatment by pelvic lavage with the various antiseptic solutions and, especially, nitrate of silver, but no one seems to have thought of this as routine preparation for operation and as after-treatment as a means of preventing the reformation of kidney stone.

In practically every case of nephrolithiasis calling for operation we have to deal with kidney infection as well. In such cases the elimination of the infection before the operation is very important if we are to obtain the best results possible. This cannot always be done, but when it can two things are accomplished: first, union by first intention is made possible; second, the recurrence of stone is rendered less probable. This plan of preparation could be efficacious only in cases of infection where the stone is located in the kidney pelvis. Practically all renal calculi, primarily, are located in the kidney pelvis. This is certainly true with the exception of those cases associated with tuberculosis of the kidney, and these call for nephrectomy.

The statistics given by Cabot and Crabtree cover operations for stone in the kidney and ureter at the Massachusetts General Hospital for eight years previous to January, 1914. The list includes one hundred and fifty-five cases but only eighty-seven of these were carefully examined at the clinic to determine the postoperative results. Of these eighty-seven cases, sixty-six were operated upon for stone in the kidney, twenty-one for stone in the ureter. Of the kidney cases, 34, or 51 per cent., were not well, 23, or 49 per cent., were well. Classified according to type of operation, thirty cases of nephrotomy show 13, or 43 per cent., well, and 17, or 51 per cent., were not well. We see from this the better results were obtained by pyelotomy. This, we believe, is a perfectly natural result, since hemorrhage following nephrotomy is more profuse than in pyelotomy and the probability of clot retention greater. Infection following nephrotomy certainly is more likely to occur.

Their conclusions are that in operations for kidney stone the probability of recurrence is considerable; that it depends somewhat upon an entirely unknown factor, the liability or ability of that particular kidney to form concretions. These authors state that in their opinion infection is not "a factor of overwhelming importance" in the formation or recurrence of kidney stone. In the last two conclusions we do not concur but adhere to the theory of infection and hemorrhage as predisposing causes to stone formation.

Dr. Braasch, of the Mayo Clinic, concludes, after a study of eighty-eight cases operated upon there, that about ten per cent have recurrence. Dr. Frayer of London believes that recurrence is so frequent that non-

surgical interference is the better policy to pursue unless decided symptoms are present. He believes that recurrence is almost inevitable.

Such divergence of opinion from men of their prominence and clinics of such wide reputation is proof positive that enough work on the subject has not been done to make the present statistics of value as to the frequency of recurrence. Practically nothing has been suggested to prevent the reformation of stone.

The above mentioned plan of treatment occurred to us while working out the following case:

Mrs. S., age 43; complaint, pain in back.

F. H.: Negative.

P. H.: Ordinary diseases of childhood, no complications. Married at age of 20, three healthy children. No history of typhoid fever or any illness which would act as a predisposing cause to nephrolithiasis was obtained.

P. I.: Began suffering with severe pain in back eight years ago. These attacks occurred at frequent intervals and were accompanied with pain, chills, loss of appetite, etc. Occasionally, hematuria during an attack. Pain in back is increased by motion. For past six months slight frequency of urination. Two weeks ago severe attack of colic, chills, and high fever.

Examination: General appearance, anxious expression and anemic; no deformities. Eye, ear, nose and throat negative. Teeth bad. Heart and lungs normal. Blood pressure, systolic 120; diastolic 80. Palpation, negative. Percussion, considerable tenderness is found over each kidney but more marked on right side. Urinalysis—Reaction acid, Sp. G. 1022, many pus cells, few red blood corpuscles; albumin, medium amount; sugar, negative; casts, negative; leucocyte count, 14,000; Wassermann reaction, negative. Cystoscopy—Bladder capacity 300 c.c. Marked trigonitis with slightly gaping and inflamed ureteral openings. Ureter catheterization showed considerable infection of both kidneys but more marked on right side. X-ray report showed stone in each kidney. Thorium pictures demonstrated their presence in the kidney pelvis. Phthalein output from the right kidney 18 per cent., from the left 20 per cent., in fifteen minutes.

Preoperative Treatment: The patient was prepared for operation by irrigating the kidney pelvis with a solution of nitrate silver twice weekly, beginning with one-half of 1 per cent., and increasing one-half per cent., each treatment. After six treatments there was no evidence of infection in the left kidney and very little in the right.

Operation: Patient placed on stomach. Regular renal incision. Stone was removed from each kidney by pyelotomy. The incisions in the kidney pelvis were reinforced with masses of fat. The left incision was closed completely. A small drain was left in the right for two days. Both wounds healed by first intention.

Postoperative treatment: We began pelvic lavage with a solution of nitrate of silver two weeks after operation, and will continue until there is no evidence of infection of the kidney pelvis.

There was practically no pus in the urine obtained from the left kidney at the first catheterization after operation.

CONCLUSIONS

1. That recurrence of kidney stone is very frequent.

2. That no one has offered a definite or plausible plan of treatment to prevent its reformation.

3. That pelvic lavage warrants further investigation as a possible method of preventing the recurrence of stone.

DISCUSSION

Dr. E. T. Dickinson, Wilson: I got from Dr. Bevin, of Chicago, the idea of not making any attempt whatever to close the incision in the pelvis, but simply putting on a covering of fat, etc., and putting in a drainage tube for a day or two, without making any attempt to close the incision in the pelvis. The pelvis is very brittle, and the stitches tear out very easily, so while doing no good they may do only harm by furnishing a nucleus for reformation of stone.

Dr. Hubert A. Royster, Raleigh: I think that Dr. Crowell's hypothesis—for it is only that—is interesting, but the plan has hardly been used long enough or in a sufficient number of cases to justify a conclusion. Two things must be admitted: There are many kidneys containing stones that are not infected; and there are many kidneys infected that have no stones.

A doubt occurs to me, in a spirit of friendly criticism, if the nitrate of silver will really disinfect the kidneys so that there will never be any more infection. If we use it before the operation, which I think is a very good thing to do, and then use it after the operation for a certain time, are we sure the infection will be destroyed, even if we think the stones are the result of the infection? How long should we keep up the treatment? Is nitrate of silver an efficient germicide? Does it always destroy the infection?

In December, 1917, before the Southern Surgical Association, Dr. Chas. R. Robbins, of Richmond, read a paper on this subject. Ransohoff, of Cincinnati, said that he did not know what caused stones in the first place, and that he did not know what caused them in the second place; but he thought the process might be like the formation of the stalagmites and the stalactites in the Mammoth Cave, and, if some one would explain that, he would explain the formation of stones. The point is that there are certain deposits in the kidney that form stone. These elements are there, and if not, there would be no stone. Now, what we want is to determine, if we can, in what cases recurrences will take place, and in what cases they will not. We must admit the facts as

they are, that stones do occur often in the kidney and in the urinary tract everywhere and that they frequently recur after they are removed. The kidney, being the source, is the point to attack. To my mind, there has been no satisfactory explanation offered. I am open to conviction, and I hope that Dr. Crowell will convince me.

Dr. Crowell, closing discussion: I do not know that I have anything special to add to what I have said. It is just a plan that occurred to me to be rational, and I am, like Dr. Royster, yet to be convinced that there is any special inherent power in any kidney to form kidney stone. I am thoroughly of the opinion that you must have a nucleus for stone formation, and that the nucleus is produced by infection or hemorrhage.

Now, as to the antiseptic properties of nitrate of silver being sufficient to cure infection of the kidney pelvis, I have done no work to ascertain the antiseptic properties of silver, but if you will run the strength of the solution up to 5 per cent., as we very frequently do, you will get results. Now, whether these results are obtained from the stimulation of a leucocytosis by the nitrate of silver, or by the antiseptic properties of the nitrate of silver, I am unable to say; but I do know that in our clinic, by pelvic lavage, we get rid of infection and cure our patients.

This is all I have to say on the subject at present. It is a plan of treatment that occurred to us as rational. We hope to try the plan out further and give our results at a later day.

SOME SURGICAL SEQUALÆ OF FLU, AND THEIR TREATMENT

Dr. C. M. Strong, Charlotte

This paper is a personal experience, not exhaustive nor resourceful, but we think timely. It is offered with the hope that it might bring out something from the surgeons present which will help to clear out the trenches from the great Boche flu offensive.

History has presented no parallel to the geographical, numerical, and casual extent of this epidemic. It was found in the torrids of the equator at a temperature of 110 degrees in the shade, and the icy coldness of the Arctics 40 degrees below. Rich, poor, lord, peasant, infant, old age, civilian, sailor, and soldier all succumbed to its withering blast. Its death toll was fearful, so, necessarily, its casuals. In order to best study and treat its casuals, let us invoke the aid of the bacteriologist. They find the following germs:

B. Catarrhalis, all forms of Pneumococci, B. Influenza, Früdlander's (rare), and the pyogenic with the streptococcus predominating. Among the latter Streptococcus Hæmolytica, which feeds on the hæmoglobin, was often found, thus accounting for the anæmia so frequently found. Another interesting thing was the low white count, which accounts for the extreme weakness found, and lowered resistance, making possible the sequalæ requiring surgical aid. In other words, the patient's resistance being lowered, the germs are given a fertile field to do their work, and attack the weakest point.

Are our surgical cases influenced by the flu epidemic?

I answer, in my experience, that they are. I cite a few cases, which are out of the ordinary.

Two cases of liver abscess, which were opened and drained; culture showed pus organism; subsequent sloughing of the whole liver, evidently a general suppurative hepatitis; one died and the other will likely do so. They were advanced cases, when first seen by me, and both had had flu.

Two cases of gangrene of lower leg, requiring amputation, and showing obliterative suppurative arteritis, a rare condition. Both recovered and had had flu.

Three cases of ankle arteritis, which recovered without operation by fixation and treatment. Several cases of pelvic abscess of pyogenic infection, with no clear history of mode of infection; no gonococci found or suspected; were post flu cases. These will suffice to call our attention to the probability of flu influencing surgical cases.

We know surgery does not cure all cases. When we have a localized focus of infection, such as appendix, gall bladder, or tubes, and this is the primary cause, its removal cures the patient, but where we have a secondary abscess the result of a general infection, surgery is only a partial cure by relieving the toxins developed by pressure and reabsorbed into the system. The subsequent recovery depends upon the resistance of the body. Anything which eliminates the toxins or dilutes them, such as sodium citrate and carbonate, is useful. Then we should use anything to build up cell activity, tonic, food, etc.

Personally I have had good results from the use of polyvalent vaccines, as their use seems logical. They increase cell activity and produce antibodies. Select the mixed vaccine most suitable to the individual case (practically all contain the influenza and hæmolytica) and give it in gradual doses up to tolerance as an aid to surgical methods.

My conclusions are:

(1) Practically every one was subjected to flu infection.

(2) It was a virulent type.

(3) It was a mixed infection.

(4) Patients who succumbed showed marked anæmia and weakness.

(5) Blood picture showed decrease in hæmoglobin and white cells.

(6) This was explained by the presence of the pus cocci and streptococcus hæmolyticæ.

(7) Some surgical cases were unusual, as liver abscess, arteritis, and gangrene.

(8) Surgery has to be reinforced by other means.

(9) That mixed polyvalent vaccines, given up to tolerance, have in my hands given good results.

DISCUSSION

Dr. L. N. Glenn, Gastonia, Chairman: I do not suppose a paper has been read today that more of you are in position to discuss than this paper. We ought to have this subject well discussed, and I shall be glad now to hear from you. I shall be especially glad to hear from some one who has had experience with the vaccines and can tell us something about their use.

Dr. Alfred Heineberg, Philadelphia, Pa.: In my own work I did not come in contact with a great many of these cases; but in regard to the question of the application of vaccine, I might tell of the experience which the gentleman who shares my office in Philadelphia had. He is a nose and throat specialist but was called upon, as many men were during the epidemic, to help out. You know, we were probably harder hit in Philadelphia than in any other city. He treated actively only very few cases of influenza, but he gave to between four hundred and five hundred cases prophylactic doses of a stock polyvalent vaccine. Of course, many of you are doubtful about the value of stock vaccines, yet I think this experience of Dr. Kaufman tended to show the value of vaccine as a prophylactic agent in this disease.

He was called one afternoon to go to a foster home, where there were between one hundred and fifty and one hundred and sixty children. At the time of his arrival, fifteen were down with influenza. He had taken with him a large quantity of vaccine, and he inoculated every inmate of that institution, including between one hundred and fifty and one hundred and sixty children and some thirty or forty attendants and nurses. From the time of his visit and the first injection, only four children developed influenza after the inoculation. This, to my mind, represents what has been called for in the evaluation of vaccines in the case of controls. Here he had one hundred and fifty controls and fifteen active cases, and of the controls only four developed the disease. To other cases throughout the city he gave two hundred and fifty

prophylactic injections, and of those only two developed the disease. The physician in charge of the employes of the Philadelphia Electric Company gave prophylactic injections to about 800 and not one of them developed the disease. I had a conversation with this physician, and he assured me that this was his experience.

As to the value of these vaccines after the disease has begun, I am not prepared to say anything. I doubt very much if they would be of value in the acute stage. In the convalescent stage, they might be of value in stimulating leukocytosis and in stimulating other forces to activity.

Dr. Ben H. Hackney, Lucama: We have all seen, and shall continue to see, a great many sequalæ of influenza. Among the operative cases I have seen one case of paranephritic abscess, which was opened and drained. I have also seen several cases of empyema. In regard to these sequalæ, it is remarkable to note that some patients, after the acute attack has passed, pick up in weight and feel a great deal better than in the past; while a large number will be greatly depressed, do not regain appetite, and feel generally miserable. Among these cases which do not fully recover, it is very probable that the streptococcus hæmolyticus is present and that the patients do not get their red blood cells back. Perhaps they have some sinus trouble and other catarrhal trouble. These are the cases that come back to see us and tell us that they are not much improved. In these cases I have used the vaccines with splendid results. In the acute cases I do not use any vaccine; therefore, I do not know how it would have worked, but I am of the impression that it would have been of value.

Among the cases of the depressed type of which I have spoken I had one school teacher, an elderly man, who had to give up his work. To him I gave ten injections of the vaccine, and at about the fourth injection he felt very much better, and after the sixth he told me that he was well again. Another case was that of a school girl with influenza, with pneumonia following. It left her with pleurisy. She was very much depressed, and felt that she would never get well again. After the second injection she admitted that she was better. I am of the opinion that we get value from the vaccines in these cases of depression, where the patients do not improve and get back to the normal after the acute attack of influenza has passed.

Dr. R. H. Lafferty, Charlotte: There is one sequela of influenza that has the Rœntgenologist up a tree, and that is the appearance of the chest after influenza. I have spent three weeks in New York with

Dr. Witherbee at Rockefeller Institute. The only radiographic work he does is heart and lungs. He had great numbers of these plates that showed what I am speaking of. He had cases that came in as incipient tuberculosis, and when you put those with the gassed cases and bronchial infiltration you could not tell them apart. I feel that the lungs, after influenza, offer a fertile field for tubercular infection, and I believe that we shall have an increase of tuberculosis following this, and I think some of those papers in the Section on Medicine, in which they said "Feed, feed, feed," are going to offer the solution.

Dr. L. N. Glenn, Gastonia, Chairman: I am just back from the Mayo Clinic, after three weeks up there, and I should like to report a little experience. You know that Rosenau is as able a man as we have. Recently he has devoted a great deal of time to the sequalæ of influenza, and especially to the so-called pneumonias following influenza. He has perfected a vaccine—or, at least, has it in practical use—which they are watching very closely, giving it every trial and sending it out for others to give, and they are gathering all the data possible on it. Their reports, summing up results from the treatment of a good many thousend patients with that vaccine, show very much smaller percentages of pneumonia following influenza than in influenza without that treatment. The vaccine was not given with the idea of treating the influenza *per se,* but was given to treat the pneumonia, or so-called pneumonia, following influenza. Their statistics, on the face, show a very marked decrease in the cases having a subsequent pneumonia, and they also show that the cases that do have pneumonia have it in a much milder form than those cases that did not have the vaccine.

The Mayos themselves are using the vaccine and advocating it, and teaching it as an established fact that they have secured some protection against the so-called pneumonia following influenza. As to the influenza itself, they do not claim that they know anything more than we have known about it, but they do claim that they limit the number of pneumonias following influenza.

Dr. Strong, closing the discussion: I have not had any experience in the prophylactic treatment of influenza, but if the vaccine helps to cure the disease, it will certainly help the sequelæ. In the cases of which the doctor spoke—those that got over it quickly—their resistance had been built up, and it simply acted as a tonic.

From what our president said this morning, we shall have to quit giving medicine, and since we have to fool our patients with something, we might try the vaccines. But I do know that in those cases on which I operated, with a low hæmoglobin and blood count, the white blood cells

and hæmoglobin increased very rapidly, much more so than I would expect as the result of an operation without the use of vaccines. I have had little experience, but felt that I ought to offer the results of it to my brothers.

A SATISFACTORY EXTENSION SPLINT FOR THE LOWER LIMB

Dr. E. T. Dickinson, Wilson

A splint that is easily provided almost anywhere, and satisfactory as a permanent appliance for nearly all pathological conditions of the lower limb requiring a splint without additional traumatism, is the boon I hope to describe and demonstrate. This splint is not my design, but I have used it with the greatest satisfaction for fifteen years, having read an attractive description of it in some journal. I have never seen it used except in my own cases. But I am impressed that the splint and its principle of action are coming into their proper recognition, as I see frequent reference to the principles from various sources in recent war surgery.

In recent years so much attention has been paid to the more attractive major surgery that the subject of simple fractures seems to have been sadly neglected. This practice has been essentially a rotation year after year and text after text of the practice of previous years and texts. Without thought of ingenuity the law of precedent and custom have been strictly followed. It may be that judgments from damage suits have in this way been avoided in some cases, but the real occasion for them has not been disposed of, for we often have not done as well for the patient as might have been done.

The one basic principle of fixation or immobility of the site of the fracture has been the prominent feature of all texts, and has overshadowed and often caused to be forgotten the vastly more important principles of reduction and its maintenance and of the very essential element of comfort. Extension is the prime essential of reduction. Good form is the clear indication of proper extension. The British Fracture Committee asserts that good form is almost synonymous with good function. No other principle of treatment produces good form so well as the application of extension. This is best shown in dealing with the powerful muscles of the thigh in cases of fracture of the femur.

Extension of the segment distal to the fracture and retained in a position which gives comfort to the patient should be the first requirement of a splint. The proximal portion of a fractured limb takes a fixed position on account of strong muscular attachments. Controlling the

position of this portion by confining with splints of compression is quite impractical. The distal portion must be fitted to the proximal. So, in the various fractures, especially of the thigh, it is necessary to know the position assumed by the proximal portion, so that the distal portion may be put in continuous extension in the same general direction.

In subtrochanteric fracture muscular action displaces the upper fragment invariably upwards and outwards, and when the lower fragment is properly adjusted to the upper the limb will assume the position of abduction and external rotation. A splint acting physiologically must hold the limb continuously in this position until union is firm.

In fractures of the shaft the resultant of the action of five groups of muscles determines the position of the fragments. Here it is difficult to determine the resultant effect, but here it is not so essential of exact determination since the upper fragment is never much displaced, unless the fracture be high where the pelvotrochanteric muscles predominate in a similar way to that in subtrochanteric fracture.

The British Committee on Fractures made a valuable observation which I quote here: "It is of importance to emphasize the strength of the muscular actions which produce these displacements of the femur; it is such that no manual force can overcome it, and immediate reduction is impossible, even with anæsthesia. It should be remembered that muscular action is more powerful when the limb is extended in a straight line. If the thigh is flexed on the pelvis and the leg is flexed on the thigh, muscular relaxation is immediate and correction easier." After operative disinfection of the fracture, if compound, fixation and continuous extension constitute the two essential objects in treating all fractures of the thigh. Continuous extension is the only means of restoring bone and muscle to normal positions. Continuous extension is only satisfactory when the pull is exerted in the axis of the upper fragment. To avoid useless effort and to facilitate extension, the limb should always be placed in a position which naturally neutralizes the displacing force. The ideal realization of this object is always to arrange the lower limb with the leg slightly flexed on the thigh, and the thigh on the pelvis. In this relaxed position a much smaller force will effect a more rapid and complete reduction.

In supracondylar fracture or fractures near the knee the lower fragment is pulled backward by the gastrocnemius and soleus muscles, the upper fragment only slightly forward. So, flexion of the leg on the thigh, relaxing these muscles, and continuous extension of the limb, while so flexed, in the axis of the upper fragment, reduces the displacement.

In fracture below the knee displacement of the fragment is not so great, and reduction may be made and retained by simple extension with continuous traction.

Fractures of the neck of the femur and luxation of the sacroiliac synchondrosis and other derangements of the bones of the pelvis may be most satisfactorily treated by suspension, and continuous traction, while the thigh is flexed on the pelvis and the leg flexed on the thigh.

A splint fulfilling these requirements, which are the requirements of a splint giving good results, may be made without tools and adjusted in less than five minutes. The only materials required are an iron rod the size of a lead pencil or larger, eighty inches long, more or less according to the length of the leg, and a roller bandage or two.

To make this splint find the middle point of the rod and bend into the shape of a U, making the curve sufficient in size to readily admit the largest part of the thigh. Bend the curved portion to right angles with the limbs of the rod; placing this on the leg find the point opposite the knee and bend the limbs of the splint down at this point to an angle of fifteen or twenty degrees. This completes the essentials of the splint except fixing a loop of bandage to the angles at the knee for suspension and throwing a strong roller bandage or two around both limbs of the splint to form the hammock on which the limb of the patient will rest. A few extras may be added at will and at leisure, such as a stirrup or board rest for the foot and any padding that may seem desirable from day to day for rest of any irritated areas of tissue.

The limb suspended in this splint may be given extension in either of two ways. The cord suspending the splint and the leg from the points opposite the knee may be fastened above so that the cord will pull at an angle rather than vertically so as to give any moderate traction. This gives the pull through the knee joint on account of the flexion of the ends of the limbs of the splint. This may be well done through an old but close fitting shoe on the foot, having a nail driven into or through the heel of the shoe. Or extension may be made through adhesive strips fastened to the skin in the usual way, or by the use of Steinman's pin or similar modern devices, which, however, are often objected to on account of the additional traumatism.

The advantages of this splint are too numerous to mention here except in a general way. The satisfaction is well distributed between the doctor, the patient, and the nurse. In simple fracture any effort at reduction is unnecessary except in very muscular subjects. If put up overnight with suspension and extension in the proper direction and the patient given a good dose of morphine, relaxation and reduction will

be complete and permanent so long as extension is maintained. The patient is comfortable because he can move from one side of the bed to the other, sit up in bed or turn himself on either side without interfering with the site of fracture. This also prevents bed sores and other pathology incident to lying too long in one position. The bedpan can be placed and displaced by one nurse with ease, having the help of the patient while one leg is suspended and out of the way, free use being allowed the other. The back also can be bathed and cared for with equal ease and comfort.

DISCUSSION

Dr. Rigdon O. Dees, Greensboro: I think this is a very fine paper, and it has brought out one feature with which I am especially pleased, in the fact that this splint will to a great degree overcome a stiff knee in fractures of the femur or the tibia, where our usual method is to put the extremity up straight. I have just recently had a case of fractured tibia in a man sixty years of age, in which the worst complication was a stiff knee. I see that with Dr. Dickinson's splint this is overcome, as you leave the knee in a neutral or semiflexed position.

Dr. Dickinson, closing the discussion: I would say in reference to the remarks just made that this splint will not only prevent a stiff knee but, in cases where the knee is already stiff, by leaving the foot unfastened, the gradual tendency to pull the knee up will straighten the knee, unless it is very rigid. I have recently had one case which I treated in this way, and the results have been very satisfactory.

Authority to Publish Granted
Board of Publication, S. G. O. Loy McAfee, Secretary.

THE DIAGNOSIS AND TREATMENT OF ACUTE EMPYEMA

Franklin A. Stevens, Lt., M. C. U. S. Army; Walter Reed General Hospital, Washington, D. C.

The recent war has modified the treatment of disease in numerous ways. Proper methods and conceptions have not been lacking but the limited number of cases and the facilities for concentrated study have hindered their application until the present time. In this respect, pneumonia and empyema differ in no way from the other medical and surgical conditions encountered during the last few years. The principles of diagnosis, Rœntgenology, dietetics, and surgery applied to lung infections and the sequelæ have been appreciated, but an opportunity to consummate the results of such treatment has not been offered. With the

mobilization of a large army, pulmonary infection was emphasized for two reasons; one was the relatively small number of gastrointestinal cases which have occurred since the institution of typhoid prophylaxis, and the second that measles with subsequent bronchial infection was found thruout the army camps. Recently the "influenza" pandemic has augmented the already large number of empyema cases in the United States. These factors have revived the interest of the medical profession in a condition which has been recognized for some thousands of years, and which was even treated by the old Greek surgeons with some degree of success.

The epidemics of pneumonia which have occurred during the last two years have been due largely to the pneumococcus and hæmolytic streptococcus; the influenza bacillus has been found occasionally as the primary cause, but has usually been a secondary invader of the already infected lung. Since it is improbable that the visceral pleura can be infected without a preceding lung involvment, and furthermore, because the influenza bacillus is rarely found alone in the pleural exudates, the clinical descriptions of pneumococcus and of streptococcus empyema will cover nearly all these cases. The usual uncomplicated lobar pneumonia is due to pneumococcus and can be confused with certain streptococcus pleurisies in which there is a very rapid accumulation of seropurulent fluid. Both are sudden in onset with a chill, acute thoracic pain, and a temperature which is high and continuous during the first few days. The bacteriology of the sputum, the physical signs elicited and the X-ray are means of differential diagnosis. Frequently, even before the bacteriologist reports the organism found, the character of the sputum indicates the type of infection; in lobar pneumonia it is bloody and quite profuse. During the first twenty-four hours the diagnosis is frequently impossible because the physical signs are not sufficiently marked. A fricton rub may be heard over the entire side in either case, but with the increasing fluid or immobilization of the lung due to consolidation this disappears, and the area becomes dull on percussion. The character and the location of this flat area are both important; fluid gives a note completely devoid of resonance, it is elicited first in the lower back, and the area increases rapidly in size. This contrasts sharply with the semiresonant note over early consolidation. Auscultation and palpation aid in the differentiation, but they are by no means final. In fully half the cases during epidemics of mixed infection, it is necessary to aspirate if early diagnoses are made. After the third or fourth day, when the fluid has filled an entire chest and displaced the thoracic viscera, these cases are relatively simple. Altho this fulminant streptococcus infection is not uncommon, the majority of empyemas

develop during the course of the pneumonia. This is true in most bronchopneumonias where the temperature rises gradually as the lungs become more involved. After several days, when the chest is a mass of coarse râles, the resonance of certain points is found impaired. The base of the pleural cavity is usually involved first, but adhesions are formed early and pus pockets may be found in any part of the thorax. Large dull areas or patches of apparent consolidation which do not resolve are sufficient indication for diagnostic aspiration. Frequently, the temperature continues after the patient has passed thru the acute stage of the illness. Here, especially, repeated physical and X-ray examinations should be made until the presence of pus can be excluded. In any event, it is wiser to aspirate than to be in doubt.

Textbooks state that definite signs are elicited over every pyothorax. Stress is given the distant breath sounds, the diminished tactile fremitus and the flatness obtained on percussion, in contrast to the bronchial breathing and transmitted voice sounds in consolidation. Our conception of consolidation need not be changed, but we must realize that the differentiation of these conditions is difficult. Massive effusions or pocketed collections of pus at the apices or near the hilus of a lung give marked broncophony and occasionally increased tactile fremitus. We must rely most on the complete flatness found over fluid and the fact that fremitus is never as marked as over consolidation. X-ray diagnosis is, however, essential, and aspiration must be done to prove the diagnosis. The diagnostic aspiration should be made with a small syringe sterilized with needle attached; puncture should be repeated until one is assured that no pus is present.

Various important factors enter into the treatment of empyema. It is obvious that the degree of pneumonia existing and the state of the patient's nutrition demand what may be called a timely operation. The mortality following operative procedures has been larger than the study of isolated cases indicates. Death results not from the operation but from the exhaustion attending the infection; hence, thoracotomy should be avoided if the patient is still acutely ill. The object of treatment at this time should be preparation for drainage, allowing time for the lung process to subside; it should differ in no way from the treatment of any case of pneumonia. It comprises the removal of excess fluid and proper feeding. A great deal of the reluctance shown by the profession to forced feeding in fevers has been overcome by the excellent results obtained with the high diets now given typhoid patients. A pneumonic certainly has the same food requirements and fewer contraindications to forced carbohydrate feeding. The preparation of a diet of cream, rice, gruels and lactose, which can be given at frequent intervals, requires no

more care than the simple ones. Carbohydrates should be given in unlimited amounts. Intravenous glucose solutions have been used very successfully when nausea prevents mouth feeding.

During the interval between diagnosis and operation the fluid should be removed from the chest by repeated aspiration. This may be accomplished either with the Potain apparatus or by introducing a canula with a catheter which is clamped and left in the chest wall permanently. The choice of these methods depends on the rapidity of fluid formation, since some cases require aspiration daily and others less frequently. As a rule large effusions which form during the first few days of illness are most profuse and are more easily removed with the catheter. If the pus is discovered late in the disease and the quantity is small, a needle is simpler and more satisfactory. The cavity should be emptied slowly. When very large, the contents should be only partially withdrawn the first day. This treatment is merely palliative; it seldom cures an empyema, and foreign substances or chemicals should not be introduced to sterilize the cavity in the attempt to avoid a subsequent operation.

Occasionally an urgent complication such as pyopneumothorax with excessive intrathoracic pressure demands immediate surgical interference. The operation should otherwise be delayed until the pneumonia has subsided and the exudate has become frankly purulent. By this time the pleuræ are adherent, so that the shock associated with sudden collapse of the lung is avoided. Inasmuch as I have studied these cases only from the clinical and laboratory sides, I am not in a position to argue concerning the character of the operation, that is, the advisability of resecting a rib or of doing a simple thoracotomy. Judging, however, from the healed cases which the surgeon refers to the internist for examination, the percentage of recurrences is higher when ribs have been resected. The rib end offers an excellent harbor for bacteria, thus lengthening the period required for sterilization, the rib becomes necrotic, and if the tract is not entirely obliterated before the sinus closes I have found that pus accumulates and secondary operations must be performed. When free drainage is established, several perforated tubes are placed in the cavity and irrigation with a neutral solution of chlorinated soda is begun. A neutral solution will not irritate the skin if the area surrounding the wound is covered with petrolatum and large absorbent pads. The diet mentioned should be continued well into convalescence and bacterial counts of the discharge should be made frequently to control the irrigation.

These principles indicate all that is necessary in the diagnosis and treatment of acute empyema. The injection of various substances for X-ray diagnosis is to be avoided until the patient is well or convalescent

and the knowledge afforded is required by the surgeon in the treatment of the chronic sinus. We must remember that aspiration is not curative, but is an attempt to lessen the virulence of the infection until the proper surgical procedure can be carried out.

DISCUSSION

Dr. J. T. Burrus, High Point: Perhaps no more interesting subject has been or will be discussed here than the subject of empyema. No one condition has claimed so large a toll, excepting acute lobar pneumonia, or pneumonia following influenza, than has this condition of empyema, and the man who has had the opportunity to watch and study the different phases of empyema as seen in the camps of this country is indeed very fortunate.

During the Civil War some one said, following a very acute battle down in Georgia, that "hell had broken loose in Georgia." That same phrase could be applied to empyema at Beauregard, and you could extend it over the entire period, and say that hell always existed down there.

The greatest number of empyemas came as a sequelæ to the catarrhal pneumonia that complicated measles. In our first epidemic at Beauregard we cared for eighty-six of these cases, and we had at one time eighty of these cases in our hospital. It was my privilege also to observe at this time a number of cases of empyema at Pike, at Bowie, at Travis, and at Houston. The infection, as we saw it, was either a streptococcic, a pneumococcic, or a hæmolytic infection. The type of infection had much to do with the treatment, and the time at which these cases were diagnosed had much to do with the end results.

I do not believe—I hope you will pardon me for digressing—that there is such a thing as an unresolved pneumonia. I think that in all cases of pneumonia, where the fever continues for an indefinite period, if we search diligently and carefully, we shall find fluid somewhere in the chest cavity or in the lung.

Our greatest mortality at first came from failure to diagnose empyema until the pleural cavity was entirely filled, until the heart had been crowded either to the right or left, and until the patient had almost reached a state of complete collapse. Now, the majority of these cases following measles were cases in which we picked up the diagnosis, and the majority were first located in the intersasuria or between the lobes. When we later learned to go to this location to drain these cases, it was then that we were able to begin to cut short the fearful harvest that at first we had.

The treatment used was this: When the pleural cavity was filled we went in at about the fifth interspace with a drainage tube, then about the sixth or seventh interspace the tube was brought out, encircling the ribs. Every two hours Dichloramine T was introduced into the cavity. In a series of thirty cases, ten on Carrell-Dakin, ten on Dichloramine T, and ten treated by autogenous vaccines, all apparently the same type of infection and the same type of cases, to save your life you could not tell any difference in the way those cases behaved. One did just about as well as the other.

If there is pus, if there is infection, the organism producing this is detrimental, and the earlier you get that out, regardless of where it may be located, the earlier you are going to return your patient to health. If it is the pneumococcus, then you can play with it, because the mortality in this type is not nearly so great as in the streptococcic type. If it is streptococcic hæmolyticus, the earlier you make the diagnosis, and the earlier you drain, the better for the patient.

As to diagnosis, I do not believe there is an agent, or a combination of agents, enabling us to make as early a diagnosis as does a dependable, experienced Rœntgenologist. It is wonderful how quickly he will locate this little white spot. You are enabled to put your tube in there at once and drain the fluid, and you will save life by doing it.

Now, as to the drainage and as to the kind of tube: If you have a big cavity, give it good drainage; if a small cavity, give it less drainage. An important thing to do, after you have inserted the tube, is then to get the lung as quickly as possible to work. We took a couple of five-pint bottles, connecting a long rubber tube to one that would go to the top of the bottle, then a glass tube came out from the bottom and passed into another bottle. Every five hours (day) these patients were caused to blow the water from one bottle into the other, in this way expanding the lung and filling up the cavity that existed.

As to the drainage, you cannot put a big tube in the side, place it directly on a pad of gauze, and make the patient comfortable. But you can insert the tube into the pus cavity and conduct the fluid through the tube, passing the end of the tube into a bottle, letting the end of the tube go below the level of the fluid in the bottle.

Here I must say to you that we had fifteen cases at one time, picked up early, who had large cavities, men up, walking around, and taking their lung exercises three times a day, eating, gaining strength and gaining flesh. There was a man there that knew exactly how to fill up those cavities, who could fill them up in the twinkling of an eye. He was going to do it with Beck's paste. He filled them up with this paste, and five of those men died with bismuth poisoning. If a man

were going to put Beck's paste into the side of my brother or any one near and dear to me, if I could not stop him in any other way I would shoot him. It is a dangerous procedure. I hope you will take a word of warning from me and leave it off, for it will fix your patient if you are not careful.

Dr. A. G. Brenizer, Charlotte: I am glad Colonel Burrus brought out that the treatment of empyema depends upon the bacteria, for I think that is the most important point made. I had the opportunity of reviewing the empyemas in a five-thousand-bed hospital. In the case of streptococcic infection, an operation is demanded, as soon as possible, for emptying the chest. In almost all the cases that died from immediate operation we found accompanying pericarditis. It was multiple serous membrane involvement that carried those men away.

In pneumococcic infection, you can wait until the pus is quite thick before doing the operation. As to aspirating the chest in this type, we had great difficulty, due to the rapidly thickening fluid. As to the use of Dakin's in a fresh empyema, where the fluid is coming very, very rapidly, we always hesitated to use Dakin's until after the cases had become pretty chronic, to wash out the chest and to get out the necrotic tissue. As to closing the chest, I think the bacteriology amounts to very much more there than the count. I think the qualitative bacteriology is of much more importance. The wounds offer considerable local resistance, and for twelve days you can depend on the local and general resistance to carry you through and close the large majority of wounds, barring the streptococcus, the gas bacillus, and the tetanus bacillus.

Lieut. Stevens, closing the discussion: I would like to state that I am sure unresolved pneumonia does exist, and altho I have not done any experimental work myself, I can refer you to several recent articles. A great many pneumonias classed as unresolved are due to a secondary infecting agent, and I believe that this condition may exist not only for three or four months, but even a longer time. Some cases have been mistaken for tuberculosis. They resolved, and recovered completely. But I am willing to say that the "unresolved pneumonia" is usually an empyema. I feel quite sure of my ground in saying that empyema, without some preceding lung involvement, never occurred in man. That may seem a broad statement.

The type of organism makes no difference in the treatment of these cases. I think the lobar pneumonias with empyema should be treated exactly as streptococcus empyema. The fluid should be evacuated, but not primarily by resection or thoracotomy. Many of the cases that died

early had a positive blood culture, or some complication, as has been suggested, either pericarditis, peritonitis, or lung abscesses. We must admit that hæmolytic streptococcus infection is more severe than that of pneumococcus, and, for that reason, more careful medical treatment is required before surgical procedure. In practically all cases, when an empyema is opened you will find some pneumonia still existing. On the other hand, I have seen numerous cases in which the chest was filled with fluid containing streptococci for several weeks and only accidentally discovered in the routine tuberculosis examinations. The patients were not even inconvenienced. Apparently the pneumonia is the principal thing, and the one which we must get rid of.

I do not think it has ever been shown that streptococci in the chest cavity alone cause excessive blood destruction. The only cases in which serious blood destruction occur is in streptococcus septicæmia and in multiple purulent arthritis where the joints are filled with hæmolytic streptococci and the hæmolysins are forced out into the blood stream. The products of blood destruction are found in the urine in such cases.

In summarizing, I should like to make a statement concerning vaccination. It is a very interesting subject to me. I do believe in vaccine in chronic cases and I think we have every evidence to support the use of vaccine here. Prophylactic typhoid vaccine is very efficient, and pneumococcic vaccine, one, two, and three, is of value used in this way but it is by no means as valuable as the typhoid vaccine. Influenza vaccine is apparently worth little. Mixed stock vaccines may be of value occasionally, but very seldom. The only advantage of pneumococcus vaccine in Group IV pneumonia is that in cases vaccinated with Types I, II, and III, there may be a slight preventive action. This is the only value which the pneumococcus vaccine or antigen has. Streptococcus vaccine is so far of no value. Probably the most important work done on pneumococcus was that of Lister in the mines of South Africa. On the basis of that work, I think we must conclude that the pnuemococcus vaccine will be of value in the future.

SOME MOOTED POINTS IN THE TREATMENT OF SYPHILIS

Capt. C. O. Abernethy, B.S., M.D., Raleigh
Urologist and Dermatologist to Rex Hospital and St. Agnes Hospital.

It is not my intention to discuss here the various methods of administering the drugs that we use in the treatment of syphilis but to briefly call your attention to a few of the points that many of us do not seem to be able to agree upon.

Salvarsan occupies a very important place in the treatment of syphilis, but it has been very much overrated and has done much harm. I think we are fully prepared to say that one or many doses of salvarsan do not cure syphilis, and I am almost tempted to say that in my opinion very few if any syphilitics have ever been cured by salvarsan alone. This drug has done irreparable injury in many cases by giving the patient, and very often the doctor, a false security in thinking that a few doses have cured the patient, when in reality it has not cured but retarded the progress of the disease.

I have seen salvarsan clear up the local manifestations of syphilis very rapidly, while, on the other hand, I have seen patients who got weekly injections of the drug for from thirteen to fourteen weeks and the chancre still persisted. It has been said that it is practically impossible to change a positive to a negative Wassermann with salvarsan alone. I have had no opportunity to observe this because I have never given it alone long enough to try it out, but I am thoroughly convinced that we are wasting both our time and drug when we try to treat syphilis without combining other drugs with salvarsan.

It has been demonstrated that the spirochete pallida will live and grow in solutions of salvarsan. So it is not a spirochetecide in the sense that mercury is, but appears to act like any other preparation of arsenic by irritating or stimulating the cells of the body to activity. Therefore, as an adjunct to other drugs in the treatment of syphilis it occupies a very important place, but is practically useless when used alone.

Mercury as a spirochetecide, therefore, is much more important in the treatment of syphilis than salvarsan; still I think it would be just as irrational to treat the disease with mercury alone as with salvarsan alone. However, if I were forced to depend upon either, exclusive of the other, I would prefer mercury. The local manifestations of the disease can be controlled just as quickly and effectively with mercury as with salvarsan. The cases which had been given thirteen and fourteen doses of salvarsan without the chancre disappearing were cleared up in two weeks under mercury and salvarsan combined. I had much rather depend upon mercury for rendering the patient noninfectious than salvarsan.

Let us stop using the term salvarsan treatment or any other one-drug treatment of syphilis and begin to use all drugs at our command to combat this highly contagious and dangerous disease. Also let us get rid of this idea of giving a course of salvarsan followed by a course of mercury. Let us use all the drugs at once and push them to their limit. Saturate your patient with both salvarsan and mercury and, in the tertiary

stage, with the iodides, all at the same time for a definite period, then let him have a complete rest from all medication for a definite time.

This rest from all drugs is necessary on account of the fact that the spirochete pallida has the power of encapsulating itself or acquiring an immunity against drugs when given continuously over a long period of time. Therefore, the drugs lose their power and produce no effect, but after the period of rest the spirochete again becomes active and the drugs again become useful. The usual period of treatment is about twelve weeks and the rest about six to eight weeks.

The question when to discontinue treatment and pronounce a syphilitic cured is very hard to decide. Usually after two years of vigorous treatment, with no return of symptoms or positive laboratory findings with the absence of treatment during the third year, one can with comparative safety pronounce the patient cured.

DISCUSSION

Dr. Rigdon O. Dees, Greensboro: I think Dr. Abernethy's paper a very good one, short and to the point, and I am heartily in accord with his mixed treatment. Some eminent authorities say that salvarsan will cure syphilis if sufficient quantity is given, but from what experience I have had in the treatment of this disease I find the cases respond more readily to the mixed treatment, mercury and potassium iodid, and salvarsan intravenously. If you can get the patient to use by inunction 50 per cent. mercurial ointment results will be good and quick—it will cure up the primary and secondary symptoms very rapidly. Give some salvarsan and use mercury at the same time; do not use one and then wait and use the other, but combine the treatment and use both.

Dr. D. T. Tayloe, Washington: It is my plan to use the treatment mixed. I never could make up my mind to give up the old-fashioned treatment of syphilis. I always use mercury in conjunction with salvarsan. In that way I always get good results. I never use them separately. I am very glad to have heard Dr. Abernethy's paper, because it gives me more confidence in what I have been doing and the method I have been using all along. It is a hard disease to conquer, and I think one of the greatest difficulties is that we are not persistent enough to tell whether our patients have been cured. When you think you have got him cleaned up, the first thing you know the patient comes back with sore mouth or some lesion and with symptoms that make us feel satisfied that it is syphilis. I cannot lay too great stress upon the importance of persistency of the treatment. Salvarsan is a valuable adjunct to our old treatment. I believe in using the old treatment and

salvarsan combined. We are going to get good results if the patient is persistent in carrying out our instructions in using these remedies.

Dr. Abernethy, closing the discussion: I do not think salvarsan shortens the case one bit. Treatment must be continued for a long time, frequently two years. Do not use salvarsan alone, but use also mercury. The idea is to get the man thoroughly saturated with mercury and salvarsan. The only thing necessary is to watch the kidneys. Pile him full of both, but do not overload the kidneys, and you will have no trouble. I have not the time to give much of an idea about secondary cases. Most of the cases we see are not the secondary cases. There is little danger of overtreating. Ninety-nine out of one hundred are usually undertreated with one overtreated, whereas it ought to be that ninety-nine out of every hundred are overtreated. That is one thing we do not want to forget.

SOME DEFORMITIES OF THE ALIMENTARY CANAL AS SHOWN BY THE RŒNTGENOGRAM

Dr. R. H. Lafferty, Charlotte

Dr. Lafferty, by a few slides, illustrated cardiospasm, showing dilatation of the œsophagus, cancer of the œsophagus, and diverticulum of the œsophagus.

Following this were a few pictures of the stomach, illustrating deformities of the stomach due to extrinsic pressure, to ulcer of the stomach, and to various types of cancer. Then followed a few pictures illustrating ptosis and dilatation of the duodenum.

DISCUSSION

Dr. L. N. Glenn, Gastonia: Dr. Lafferty has truly said that it is the rule when examining a woman's stomach to find it below the umbilicus. Instead of considering as normal the position of the stomach as pictured by the textbooks and described, I do not believe five per cent. of them are that way. I believe 80 or 90 per cent are perpendicular, or very nearly so. So when you find a stomach the position of which is away up or away down I do not think it is a stomach to be scared at, or a stomach in very bad condition necessarily. When we find a stomach in the transverse position we look upon it as unusual, or at least very averse to the general rule.

As a practical thing you might consider the ptosed position of the stomach in abdominal injury. One might very well puncture the

stomach with a bullet or weapon from without, when you would ordinarily think it would go clear of the stomach. The majority of such injuries puncture the stomach instead of missing it. The stomach is not, as a rule, where you have been taught it is. It is below there and almost perpendicular.

Dr. H. H. Dodson, Greensboro: The Rœntgen ray has so changed our preconceived anatomical ideas of the shape and possible position of the stomach that we may find it anywhere from the normal position way down to the lowest pelvic area, and unless, as Dr. Lafferty stated, there is some other condition of stomach, there may not be any symptoms, and therefore a simple ptosis may not give any apparent trouble. In fact, I have often seen the stomach literally in a woman's lap. As to the frequency, I believe that 95 per cent. of women have some degree of ptosis, especially those who have borne many children. At least this has been my observation.

Dr. Lafferty, closing the discussion: Dr. Glenn has asked me to say more about ptosis of the stomach. This is a pretty big job he has given me, for really we hesitate even to define ptosis, much less discuss the symptoms. Rœntgenology has proven that there is really no normal position for the stomach. One has always to consider the build of the person and many other conditions. If we find a stomach below what was once considered the normal position, but one that empties normally without marked dilatation of the duodenum, we call it a normal stomach. The time was when we considered the stomach below the level of the umbilicus as ptosed. We hardly find one woman in five hundred, who is the least bit inclined to be thin, who does not show a stomach lying below this level. If it is low and does not empty within six hours we speak of it as ptosed and we may expect symptoms. Exactly what symptoms it is difficult to say, for we may have anything from a mild nervous disorder to a severe neurasthenia, or from gas and acid stomach to severe attacks of what the patient calls "biliousness."

Some one in a recent number of the *Journal of the A. M. A.* discussed this subject, attributing many of the nervous symptoms among women to ptosis, and claimed that it should be corrected either by operation or by abdominal binders. Exactly how many of the symptoms are due to this and how many to other causes it is very difficult to say, but it should be corrected, of course, on a venture that it is a contributing cause to the symptoms.

GYNECOLOGY

Dr. Alfred Heineberg, of Philadelphia, Penn., expressed his thanks for the invitation which was extended him to attend the meeting of the State Medical Society and address the section on any question which he might wish to select. He then read the following paper:

A CONSIDERATION OF SOME PROBLEMS IN DISEASES OF THE CERVIX UTERI

ALFRED HEINEBERG, P.D., M.D.

Associate in Gynecology, Jefferson Medical College; Obstetrician to the Jewish Maternity Hospital; Assistant Gynecologist, St. Agnes Hospital, Philadelphia.

The ease with which the cervix may be amputated has, I am convinced, frequently led to its removal without due consideration for other possible means of restoring it to a healthy condition. A careful study of the after effects of amputation of the cervix as ordinarily performed must reveal that frequently the immediate result and, at times, the influence upon subsequent pregnancy leave much to be desired. In most instances the amputation is done to remove a cervix which has undergone hypertrophy and erosion. Such conditions result from laceration and eversion with exposure of the mucous lining of the cervical canal to infection, trauma and irritation of the acid vaginal secretion. To insure complete removal of the diseased cervical mucosa and eroded area, the internal incision in the formation of the flaps must be made so high across the mucous membrane of the cervical canal, in most cases, that the canal or internal os may be impaired in one or two ways. The latter may be left in a state of wide dilation, or the former may be tightly constricted by a ring of cicatrix perpendicular to the long axis of the cervix, formed at the edges of the apposed flaps. A permanently dilated internal os favors infection of the uterine cavity, with the production of a leukorrhœal discharge which is much more difficult to cure than that which resulted from the preëxisting cervical disease. More important than the annoyance of the discharge, however, is the influence of the infected uterine mucosa and widely patulous os upon subsequent pregnancy. Both produce unfavorable conditions for the retention of the impregnated ovum in the uterine cavity. Several cases of inevitable abortion have come under my observation in women who, before amputation of the cervix, had no difficulty whatsoever in carrying a pregnancy to full term.

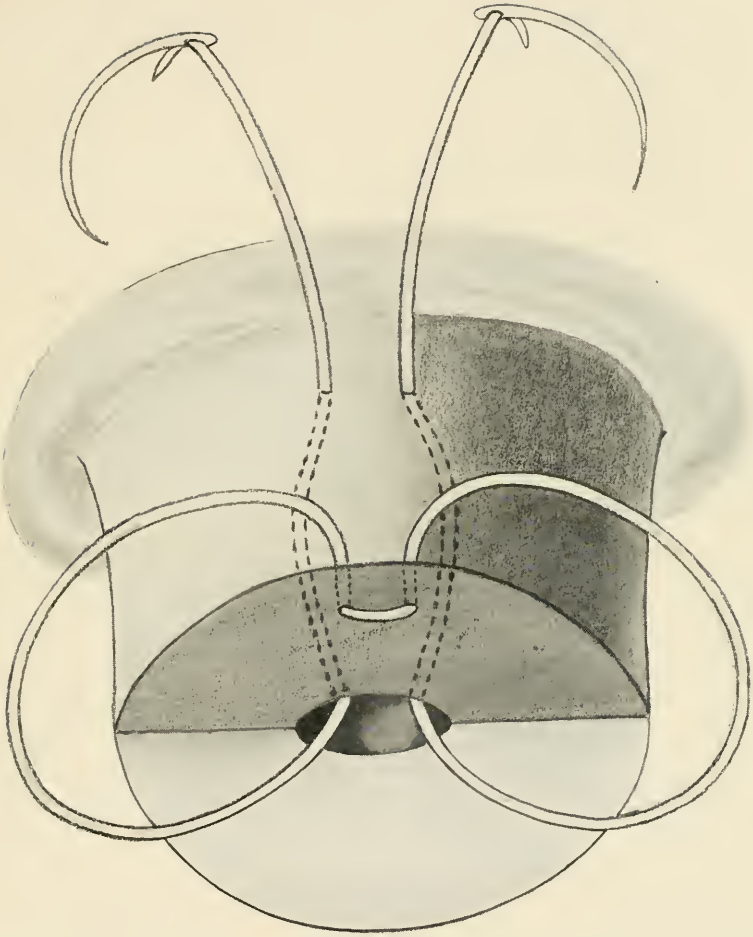

Illustration I. Showing the Method of Introducing the Traction Suture in the External Flap

I recall especially one patient from whom I had to remove retained products of conception as the result of spontaneous abortion in the twelfth week of gestation, two years after a high cervical amputation. She had undergone three normal pregnancies prior to the operation. About a year following the abortion I was asked to see her again by her physician and found her in the tenth week of gestation with evidences of another threatened abortion, and it was only by enforced rest in bed for a number of weeks that we were able to insure the continuation of the pregnancy.

Leonard reported abortion or premature labor in 55 per cent. of the pregnancies occurring in women whose records could be traced after amputation of the cervix in Johns Hopkins hospital.

Stenosis of the cervical canal produced by a dense ring of scar tissue formed along the edges of the flaps may obstruct the flow of menstrual discharge and be the cause of dysmenorrhœa. Such a cicatricial ring may produce a prolonged and exhausting labor and uterine dystocia because of the inability of the cervix to dilate properly. Indeed, in some instances the cicatrix may refuse to dilate sufficiently to permit the passage of the fœtus. Leonard found that nearly 70 per cent. of the cases of amputation of the cervix subsequently had difficult labor.

In two patients I was forced to make bilateral incisions in such a cicatrix to insure complete dilation of the cervix and permit the progress of the foetus through the birth canal. In addition to the unsatisfactory results thus far considered, failure to produce pleasing cosmetic effects by the usual method of suturing the flaps in the high Schrœder amputation of the cervix has induced me to seek and finally adopt measures which have served to overcome the objectionable features of the older operations. These I will describe later on.

No method of operation, however, will diminish the necessity for high amputation of the cervix in cases of extensive hypertrophy and erosion, because an amputation which does not remove all of the pathologic tissue, especially the eroded surface, is only partially successful. Any part of the erosion which is allowed to remain will continue to discharge and, in time, spread over the adjacent surface of the repaired cervix and thus lessen the benefit which the operation should have afforded. In so far, then, as amputation of the cervix is concerned the following possibilities always may confront us,

(a) Stenosis of the canal.
(b) Permanent dilation of the internal os.
(c) Failure resulting from insufficient removal of diseased tissue.

Since the amount of cervical tissue to be removed must be controlled by the extent of the erosion, endocervicitis and hypertrophy, it would seem advisable to rednce these pathologic changes, if possible, by other methods of treatment, in order to limit the extent of the amputation or to abolish the necessity for its performance. Emmett and others of the older operators recognized the advisability of such procedure, but its practice has been neglected in recent years, much to the detriment of the patient. It has been my practice in the last three years to subject all patients suffering from a combination of erosion, endocervicitis, laceration, and hypertrophy of the cervix to a method of treatment found to be uniformly successful in restoring the cervix to a healthy state before operation. In many instances operations have been avoided on cervices which would formerly have been subjected to high amputation. *It is the method employed in producing these results that I want particularly to describe.*

The secret of success lies in the preparation of the cervical mucous membrane for the reception of the active medicating agent. We know that the cervical canal in health contains a plug of clear, tenacious mucus. In pathologic conditions the cervical secretion is increased in quantity and becomes thick, cloudy, mucopurulent, and still more tenacious. Most of the medicinal agents, such as silver nitrate, phenol, formalin or the organic silver compounds, which are useful in the treatment of diseased mucous membranes, coagulate mucous as soon as they come in contact with it. The resulting dense wall of coagulum acts as a barrier to the access of the medicinal agent to the mucous membrane and diminishes whatever effect it might have. Complete removal of the secretion cannot be effected by swabbing with cotton or gauze, or by the use of a suction apparatus, and these methods when persisted in frequently cause bleeding which still further counteracts the action of the medicament.

After experimenting with different methods, I have found that the cervical discharge can be easily and thoroughly dissolved or dislodged by irrigation of the cervical canal with a weak alkaline solution of the following formula:

Sodii bicarb.,
Sodii chlorid.,
Sodii borat, aa gr. XL
Aqua q. s. Oi.

I use for the purpose a large Keys-Ultzman syringe. The tip of the syringe is introduced well into the cervical canal and the fluid expelled under sufficient pressure to dislodge the mucus. Several syringefuls

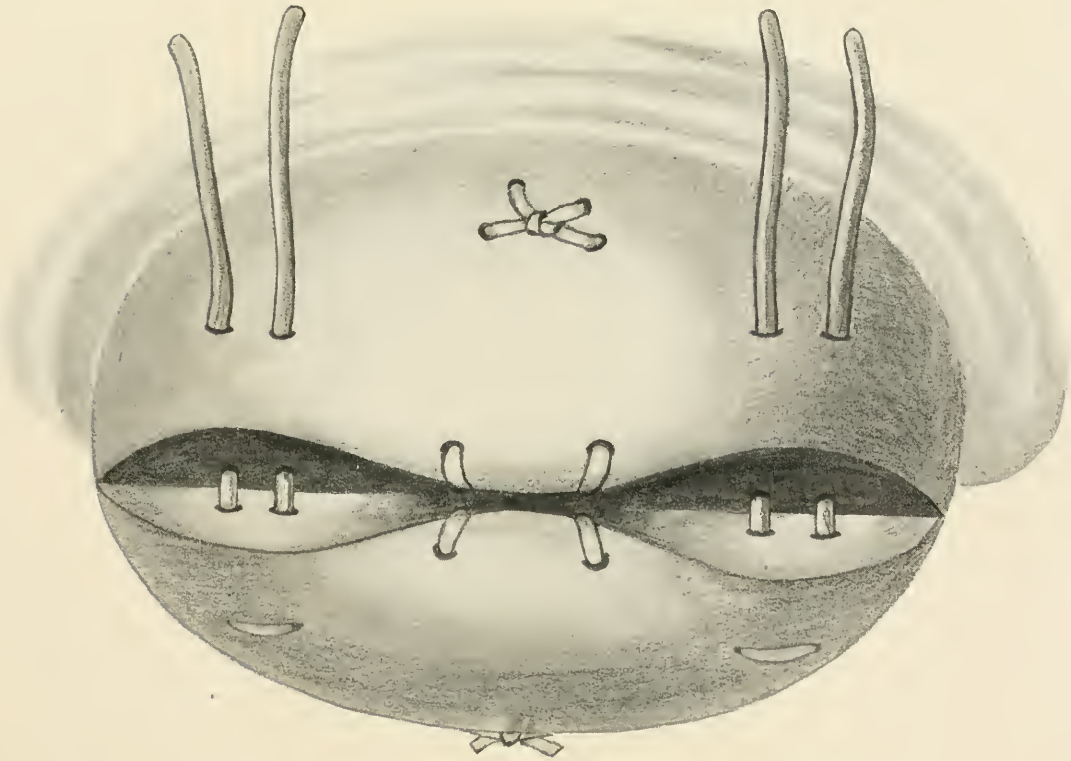

Illustration II. Showing Method of Introducing Lateral Mattress Sutures After the Traction Sutures Have Been Tied

may be necessary. There is not much likelihood of forcing the solution into the uterine cavity, unless the internal os is dilated or too much force is employed. Before beginning the treatment the condition of the internal os should be determined with a thin sterile probe. If it is found too much dilated, as it rarely is, the alkaline solution should be applied on cotton-wrapped applicators instead of by irrigation. After the cervical mucous membrane is entirely clean it should be thoroughly dried with absorbent cotton, when it is ready for the application of the medicating agent. I find no drug as good as silver nitrate for the purpose of curing erosion and endocervicitis. In the aggravated cases of long standing, in which the mucosa is greatly thickened and the erosion extensive, I begin the treatment with a 50 per cent. solution, applied every three or four days. The first few applications are apt to cause bleeding from the eroded surface. As the discharge lessens in amount and becomes thinner and less purulent, the strength of the solution is gradually decreased to 10 per cent.

If the cervix is large and boggy, the applications of the silver nitrate are supplemented with boroglycerin tampons until the cervix is reduced in size. The patient is given a prescription for the alkaline powder with directions to use one tablespoonful in two quarts of hot water as a vaginal douche once or twice a day, depending upon the amount of the discharge. It is most gratifying to observe the changes which take place in the cervix under this treatment. The erosion gradually decreases in area through substitution of stratified squamous for the thin columnar epithelium. The change can be well seen at the edges, where the ingrowth of squamous epithelium radiates toward the external os. In addition, islands of squamous epithelium may be frequently observed in the center of the erosion, looking very much like small skingrafts on a granulating surface.

By the time the erosion has disappeared the cervical mucosa has returned to its normal state; the discharge has decreased in amount and resumed its clear, mucoid character. Furthermore, the size of the cervix will have perceptibly diminished through the removal of the underlying cause of the hypertrophy, except in those cases of a very tough, fibrous cervix. In many cases I have observed a shrinkage of 50 per cent. in the size of the cervix. The time required to produce the desired results by this treatment varies between three and six months. Its distinct advantage is that it lessens the necessity for extensive amputation. The cases of bad erosion and ectropion, which were formerly subjected to high amputation in order to get rid of the diseased tissue, require after the treatment only trachelorraphy or a moderate amputation, if any at all.

In Leonard's most instructive and important essay, before referred to, he has brought out the advantages of trachelorraphy over amputation. He showed that after trachelorraphy, as compared with amputation, there is an increase in fertility, a decrease in the frequency of abortion and premature labor, and a more favorable influence upon the character of the first labor after the operation. He reports fertility in 38 per cent. of the cases after trachelorraphy as against 19.4 per cent. after amputation.

Abortion and premature delivery occurred in 28 per cent. of the trachelorraphy cases and in 55 per cent. of the amputation cases. The character of the first labor after each operation is interesting. "Following amputation of the cervix the first labor was difficult in seven of the eleven cases. In striking contrast to this result is the fact that eight of the ten cases of full term pregnancy following trachelorraphy had easy labors." In addition to these figures of Leonard, other authors have shown that dystocia after amputation of the cervix (due to cicatricial stenosis) is not only of frequent occurrence but that it may reach any extreme, even causing rupture of the uterus. "After trachelorraphy, dystocia has evidently but seldom been met with, for references to its occurrence are very scarce."

If after the herein described treatment of the cervix an amputation of moderate extent is still required to reduce the hypertrophy and relieve the ectropion, it should be undertaken. In order to reduce the stenosis following the amputation and to eliminate the uneven surface produced by the older plan of tying the sutures over the edges of the flaps, I resorted to the Bonney suture to invert the long, external flap of the amputated cervix. Unfortunately, the traction of the suture not infrequently caused sloughing of the central area of the inverted flap, and left an ulceration which occasionally persisted for a long time and, in cicatrization, caused a depression resembling a laceration, which detracted from an otherwise satisfactory result.

This defect of the Bonney suture has been overcome in my later cases by introducing both ends of the suture about a quarter of an inch back of the edge of the external flap and then carrying them through the cervical wall at the edge of the internal flap before they are tied to each other.

This modified method eliminates the pressure caused by tying the suture over the edge of the flap, distributes the tension over a wider area, prevents sloughing, and gives a better cosmetic result.

During the last two years I have further improved the cosmetic effect of amputation by exercising greater precision in fashioning the

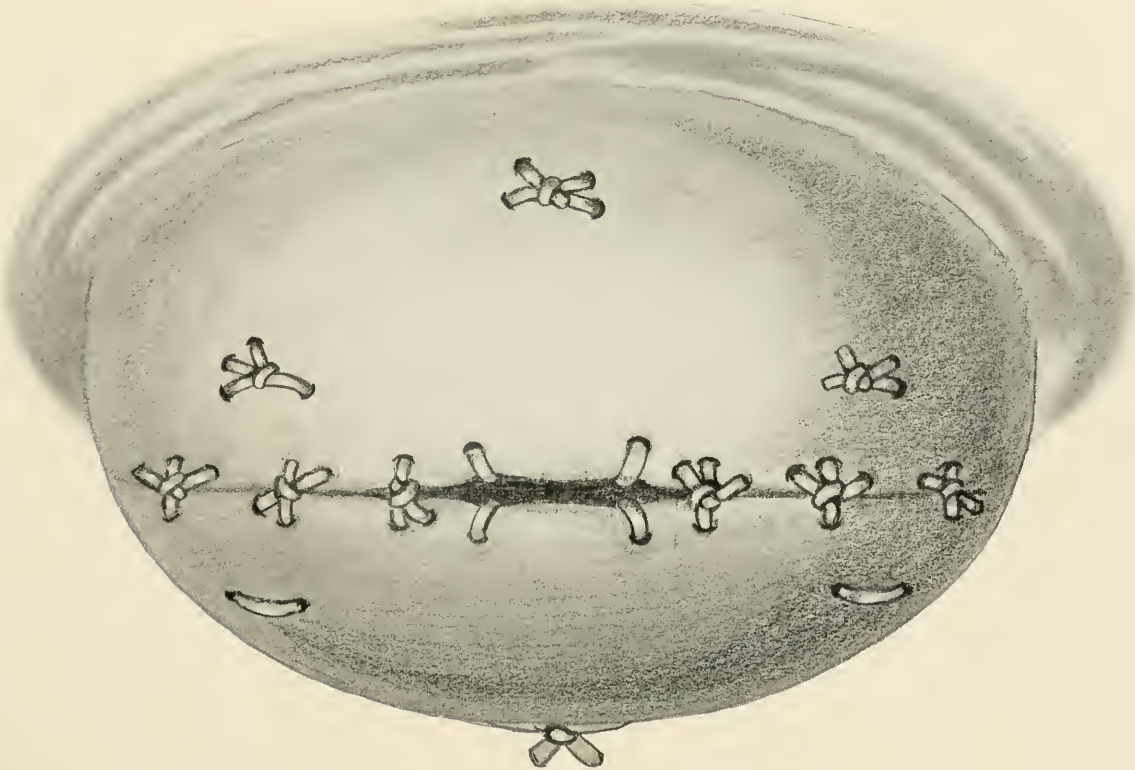

Illustration III. Showing Superficial Lateral Sutures and Appearance of the Cervix After Completed Operation

flaps and in coaptation of their edges. These results have been rendered easier by securing a bloodless field of operation.

The technic of bloodless repair which I have elsewhere described combines simplicity, ease of application, and efficiency. Hemostasis is secured through the use of two angulated tenaculum forceps (Illustration IV) and a rubber band about one-quarter inch wide. The chief feature of the forceps, in addition to the angulation, is a pedunculated ball attached to the outer aspect of each blade above the angle. The balls serve the purpose of retaining the rubber band in a position to compress the cervix above the grasp of the forceps.

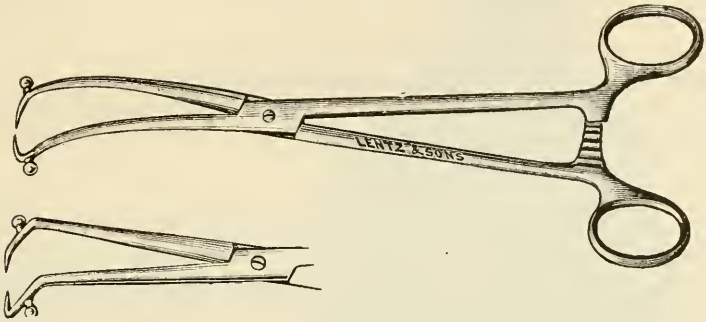

Illustration IV. Author's Special Forceps For Producing Bloodless Field of Operation.

The technic is as follows:

1. Introduce a self-retaining speculum in the vagina.
2. Grasp the anterior lip of the cervix in the median line with an ordinary double tenaculum.
3. Dilate the cervix moderately, chiefly to determine the precise location and direction of the canal. Curette the uterus if desired.
4. Draw the cervix toward one side and apply the angulated forceps to the cervix well above the level of the proposed amputation or denudation. (Illustration V)
5. Draw the cervix to the other side and apply the second angulated forceps opposite the first one.
6. Remove the ordinary tenaculum.
7. Place the handles of the forceps together. Stretch the rubber band over them and push the band up on the cervix to above the retaining balls. (Illustration VI)
8. Separate the handles of the forceps and hand them to an assistant. (Illustration VII)

It will be observed that the forceps, thus held, act also as lateral retractors of the vagina. During the progress of the operation the assistant

should avoid undue tension on the forceps, or unnecessary separation of the handles, in order to prevent making a ragged tear in the cervix with the points of the forceps. After the repair has been completed, cut the rubber band and remove the forceps. The forceps and band may be removed before the sutures are tied.

The application of the herein described methods in over one hundred cases personally treated has shown that in more than half of them medical treatment alone was sufficient to cure the existing cervical disease. In most of the others, either trachelorrhaphy or moderate amputation restored the cervix to practically normal state.

REFERENCE

Leonard, V. N.: The Postoperative Results of Trachelorrhaphy in Comparison with those of Amputation of the Cervix. *Surgery, Gynecology and Obstetrics*, January, 1914, pp. 35-45.

DISCUSSION

Dr. D. A. Stanton, High Point: I was intensely interested in Dr. Heineberg's paper, and it has added to my belief that there is much more to be done to the cervix medically than we have been doing. Of late years there has been too much of a fad to do surgery. I have been doing it, and sometimes I am forced to believe that my results are not as good as when I depended on medical treatment. I was very much impressed by Dr. Heineberg's preparatory treatment. The plan he has outlined is one which I used to follow, but of recent years I have not followed it. There is much in it for the benefit of the patient and for our own satisfaction, and I think the sooner we lose sight of our operative ingenuity and turn to the medical side, the better it will be for some of our patients and the more satisfactory to ourselves. The operation Dr. Heineberg describes is indeed an ideal one, and one that I would like to see him do. It approximates the lips of the cervix better than I have ever seen described. His technic for controlling the blood supply is one that I have never seen before.

Dr. H. A. Royster, Raleigh: I want to call your attention to the fact that there is nothing medical about this treatment. You can be doing surgery without cutting and slashing. The word surgeon comes from two Greek words meaning "hand" and "work," and whenever you are working with the hand you are doing surgery. I am perfectly willing to admit that we sometimes do operations when we should not, but that is not surgery—it is poor human judgment. This treatment described by Dr. Heineberg is not medical treatment. I know of a large book on "Medical Gynecology." I deny that there is any such

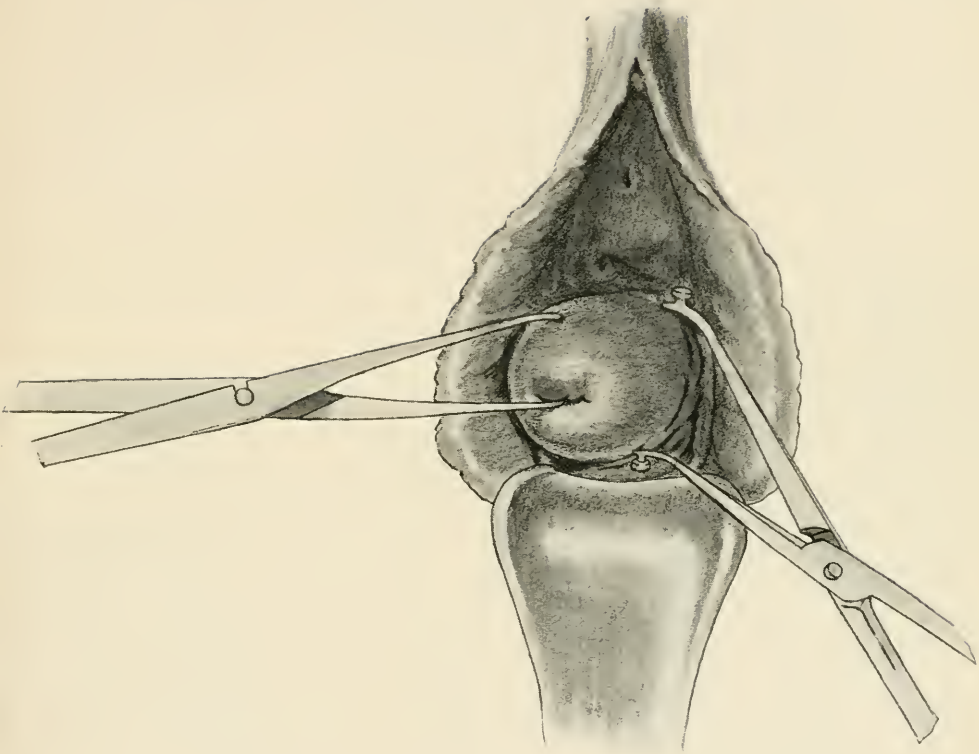

Illustration V. Showing the Cervix Drawn to One Side and the Application of the Special Forceps to One Side of the Cervix Above the Line of the Proposed Repair

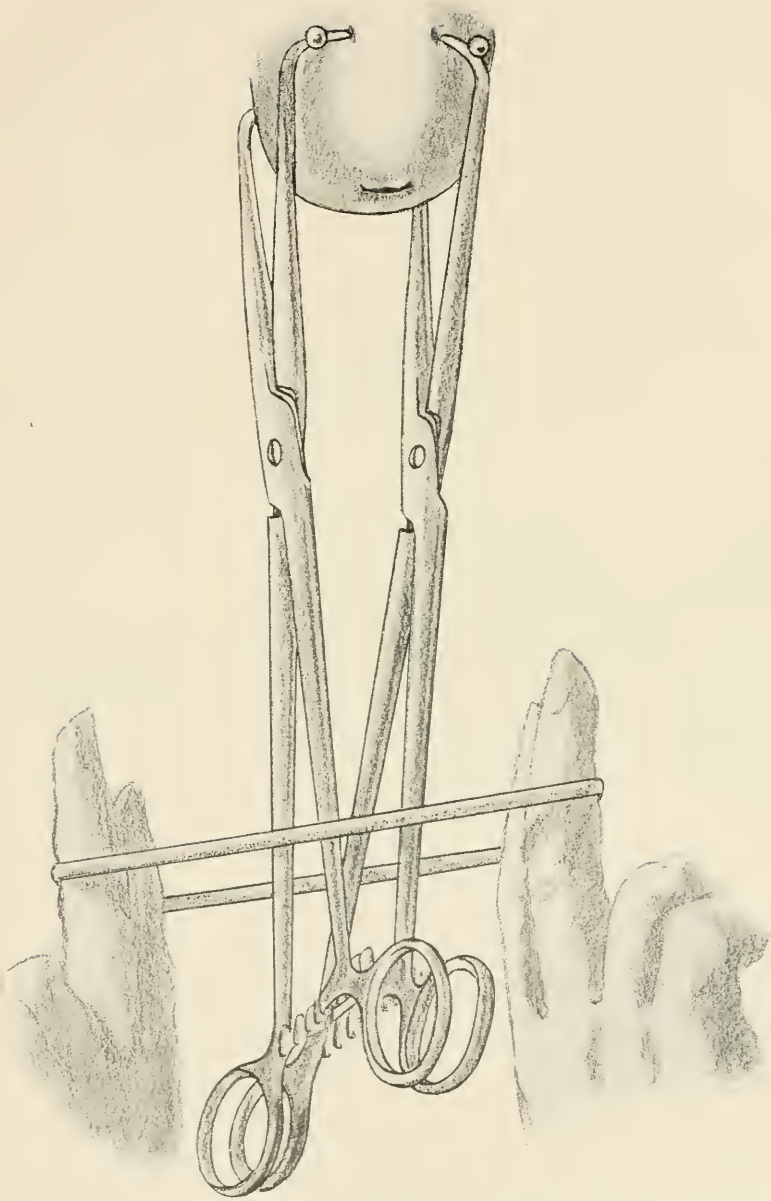

Illustration VI. Showing the Method of Stretching the Rubber Bands Over the Handles of the Forceps

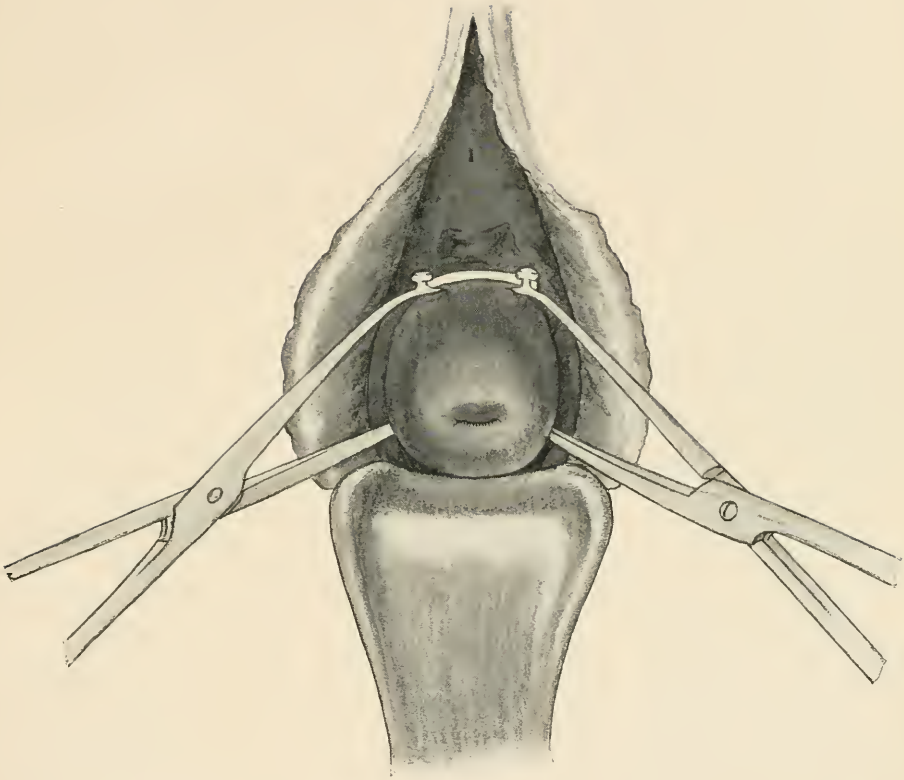

Illustration VII. Showing Both Forceps and Rubber Band in Position. Note How the Forceps Act Also as Lateral Retractors of the Vagina

thing. I praise our essayist for this, that he uses the best method for treating the disease and curing the patient.

There is no dividing line, until you try the local methods first, between cases that must be operated and those that need not. The topical treatment of the cervix is a very important thing. For every ten physicians we find who know how to amputate—and do it very poorly sometimes—we find one who can heal the cervix without amputation. I find that the greatest mistake in amputations is in trying to cut the garment to fit the cloth.

The author's stitch is a good one. I have had the difficulty, very many times, of finding that if you stick a needle in the cervical mucous membrane it is very apt to pull out, and if you stick it in the other way it is likely not to come through.

The human judgment to be exercised here is whether you need to do any operation at all, and, second, whether you need a trachelorraphy or an amputation. That does not depend upon whether or not the man is a good surgeon, but upon absolutely sound common sense.

Dr. Heineberg, closing the discussion: I am gratified to learn that the two gentlemen who have taken occasion to discuss the subject which I have brought before you agree with my judgment in handling these cases. I particularly selected this subject because I thought I would be addressing men in general practice, rather than men interested in gynecology as specialists. I would be gratified to learn if the so-called medical treatment meets with the same success in the hands of men far away from Philadelphia as in the hands of my friends who have been following it there. It is so simple, so almost one hundred per cent. perfect so far as its results are concerned. The only things it requires are time and patience, and the application of a very simple technic. Of course, if you promise a patient that you are going to cure an eroded and hypertrophied cervix, and that you are going to cure it and get rid of the discharge in two or three weeks, she will be disappointed. Tell them that it will take from three to six months to effect a cure, if they are willing to submit themselves to this treatment. If a patient has infection of the tubes and ovaries and requires an operation for that condition, in a large number of those cases I amputate the cervix also. But in most of my cases I tell the patients that they are going to be under observation and treatment for six months, during which time I propose to cure the so-called ulcer of the cervix and get rid of the discharge.

There is another case I would like to speak of. Just before I left home, I had a patient who six years ago had a curettage in order to

place her in condition so that she could have a child. She did not have a bit of discharge before the operation, but has had it ever since. I believe that the operation of dilatation and curettage in such cases ought to be abandoned. It cannot do any good. If we believe in the recent pathologic studies of the uterus, there is no such thing as endometritis. Most of the discharge comes from the cervix, and what possible good can it do to scrape away the perfectly normal mucous membrane, and possibly introduce infection from the vagina?

CÆSAREAN SECTION VERSUS ANY OTHER METHOD OF TREATING ANTEPARTUM ECLAMPSIA

Dr. D. A. Stanton, High Point

In presenting this paper I shall make no attempt to explain what puerperal eclampsia is, or its cause. When we are confronted with a case, as probably every one present has been, we are confronted with a condition on which there is no time to theorize. Action is imperative for the safety of two lives. The treatment in days gone by was blood letting, morphine, tincture of veratrum viride, etc. All recognize that the early emptying of the uterus affords greater safety to mother and child than any other one thing which could take place, but it so often happens that there is no effort on the part of nature to establish labor, and the trauma incident to forcible dilatation and mechanical means for delivery is so great that thus to deliver a woman is only adding insult to injury, jeopardizing the life which is already hanging in the balance.

What is the best course to pursue?

Cæsarean section answers the question.

With our present knowledge of surgery, with a hospital in reach of almost every physician, good roads, and automobiles for quick transportation, but a few hours at most are lost in getting the most distant patient to the surgeon or getting the surgeon to the patient. In cities where there are hospitals only a little time is needed. The operation is quickly and easily done, with less trauma than a forcible delivery. Why not take the shortest and safest route for the patient's safety? These patients are all toxic, and the emptying of the uterus is the one thing most necessary for recovery.

A Cæsarean section should be done just as quickly as possible after the first convulsion, for by so doing we have done what is recognized as the best that can be done, namely, emptying the uterus.

Of the cases coming under my care for the past few years on which I did the Cæsarean section (twelve in number), two died. That is a high mortality, but it was not the operation that killed, it was the toxemia and the delay in operating. Had the uterus been emptied as promptly in these two cases as in the other ten I have no doubt but that they, too, would have been living today.

OPERATION

As quickly as possible after the first convulsion get your patient to a hospital, or get a surgeon to the patient. Give ¼ grain morphine and $\frac{1}{150}$ atropin, and have the patient prepared for operation. An incision through the right rectus beginning 2 inches above the umbilicus and extending 2 inches below is made. Thus, when the uterus is emptied and sinks down, there is no danger of adhesion between the abdominal and uterine scars. The uterine incision is longitudinal from the top of the uterus downward from 3½ to 4 inches in the median line, no attempt being made to avoid the placenta.

I do not go directly through with the first cut, preferring to work through into the uterus cavity with the handle of the knife so as to avoid injury to the child or cord. With scissors the incision is then completed to full length. Sometimes the dextrorotation of the uterus is so great that the left tube appears in the abdominal wound and some manipulation is needed to make the median line accessible. Care must be taken to cut at right angles to the surface, as otherwise a shelving incision is made and good apposition is not so easily secured. While the child is being removed an injection of one c.c. of pituitrin or egotole is given in the gluteal region. After the removal of the placenta the interior of the uterus is gently rubbed over with gauze to insure the complete removal of the membranes.

When there is little or no dilatation of the os some operators advise pushing a strip of gauze through the os. This I have never done, dilatation and drainage having always been satisfactory. The uterine incision is closed by three layers of sutures, the first being of interrupted suture of No. 2 chromic gut through the muscular layer only. I prefer this method to the continuous sutures which some operators like. The next layer consists of continuous sutures of No. 1 chromic gut, which unites the surfaces of the wound, and the needle is made to enter and emerge close to the edge of the incision. This makes the closed wound a narrow line over which the visceral peritoneum is easily drawn by a second No. 1 chromic gut. A scar in this situation is not so liable to strain and stretching as one in the lower uterine segment would be.

The liability to rupture is therefore less. In closing, the edges are everted so the peritoneum is applied to the peritoneum, and adhesion is less likely to take place between the scar and the viscera or omentum.

DISCUSSION

Dr. E. T. Dickinson, Wilson: I agree that emptying the uterus is the best thing to do, really the only thing we are to consider. But I prefer rapid dilatation of the cervix and delivery by version. This is easily enough done in the cases, because the child is usually small and flabby. It takes no more than fifteen minutes in any case from the time of administering the anæsthesia to the end. The child stands, in these cases, just as good a chance of its life, delivered in this way. Altogether there is much more to do in Cæsarean section than by rapid dilatation and delivery. Then too, death might occur from complications arising from the more protracted anæsthesia. The kidneys are always involved and ether is contraindicated. Nitrous oxide and ogygen is the anæsthetic for these cases. There are no kidney complications with this anæsthetic. My preference is, therefore, that, while we think Cæsarean section is safe, so far as operation is concerned, the simpler way is rapid dilatation, for we are pretty sure of a safe delivery. Then we may let the case remain at home, rather than moving to a hospital, with that much delay.

Mr. Chairman, we have with us Dr. Southgate Leigh, of Norfolk, Va. I move that the courtesies of the floor be extended to him and that we hear from him on this subject.

Dr. Southgate Leigh, Norfolk, Va.: This is a subject we have been very much interested in, and I might say a word in regard to nitrous oxide oxygen anæsthesia, which seems to us to greatly lessen the risk in these cases. There is absolutely no bad effect from the anæsthetic, while ether is risky, on account of the already bad condition of the kidneys, and chloroform need hardly be considered, since it is but little used in hospital work.

It has been a great disappointment to me that the profession has not taken to nitrous oxide oxygen more than it has. It is pleasant to taste and to smell, does not irritate the lungs or the kidneys, and seems to have no effect on the heart. Nausea is reduced to a minimum. So far as we have been able to make out, there is no bad effect in any organ of the body. The only disadvantage is that it requires an expert to administer it, and I think that is a mighty good advantage. I do not think any one should give an anæsthetic who is not an expert. Nitrous

oxide oxygen does require a great deal more experience to administer comfortably than ether does. I would like much to see you gentlemen of the profession in this great state of North Carolina, who have always been in the front ranks of medical progress and development, take up and push the use of this anæsthetic, which seems to us to have so many and great advantages over ether and chloroform. In our clinic we have already used it in nearly five thousand cases, and we have never had from it any bad effect, either directly or indirectly.

Dr. Foy Roberson, Durham: I want to thank Dr. Stanton for his excellent paper on Cæsarean section, and in connection with the subject of the anæsthesia, as discussed by Dr. Leigh, I want to call your attention to the use of local anæsthesia in Cæsarean section. Of course, nitrous oxide combined with oxygen is an excellent anæsthetic, but one does not always have it available, and an expert anæsthetist is absolutely necessary. I want to report the case of a woman who had this history:

Mrs. M., 46 years of age, referred by Dr. Hackney of Bynum, N. C. When she came to me she was seven and one-half months pregnant. She had had four other pregnancies. The first two were uneventful. The third one was terminated at the end of six months on account of convulsions. The child was lost. Two years later she had another pregnancy; had convulsions and lost the child at the seventh month. At the time she came to us it was four years after the last pregnancy. She was complaining of severe headache. Had had general anasarca. Her kidney function was 26 per cent.; hæmoglobin was 20 per cent.; there were less than two million red cells, and the urine contained a heavy cloud of albumin. We kept her under observation four weeks. She was kept in bed practically all this time and given alkalies, as suggested by Fisher of Cincinnati and MacNider of Chapel Hill. After remaining in the hospital about four weeks the edema had practically disappeared, but would return if the patient was allowed to be out of bed. Examination of the heart revealed a rather loud systolic murmur at the apex, with the heart somewhat enlarged downward and to the left. She was now about eight and one-half months pregnant. The question arose as to whether, if allowed to go to term, she would have a successful outcome. We did not think she would have convulsions, but we realized the danger of an acute dilatation of the heart, and we did not think she would be able to undergo a prolonged labor. After careful consideration and consultation, we decided to do a Cæsarean section under local anæsthesia, as suggested by Trout of Roanoke. The procedure was carried out as follows: Two hours before the operation the patient was given one-eighth grain morphine combined with one two-hundredth grain hyoscine hypodermically. This hypodermic injection was repeated one hour before the operation. The abdomen was shaved and given the usual iodine preparation. The skin was first injected with a solution of one-half of one per cent novocaine. The incision was then made down to the fascia. The fascia was then injected with the same solution and incised. The muscles were next injected and separated.

The peritoneum was then injected and incised, one-half of one per cent solution novacaine being used throughout. As you know, the uterus is not supplied with sensory nerves and no injection was necessary. It was simply incised in the usual manner of doing Cæsarean section, and the patient did not feel it at all. It is indeed remarkable how easily and with how little discomfort to the patient the whole procedure can be carried out. The membranes were then ruptured and the child and placenta delivered. The uterine and abdominal wounds were closed in the usual way. The whole operation consumed about forty minutes. Both mother and child were returned to the ward, and after three weeks' time both went home in splendid condition.

Cæsarean section under local anæsthesia can be carried out with great safety and with much satisfaction to both the patient and the surgeon, and in those cases where general anæsthetic is contraindicated, such as pulmonary tuberculosis, cardiorenal conditions, and marked anæmia, I believe it to be a lifesaving procedure for both mother and child.

Dr. Moir S. Martin, Mt. Airy: This is a very interesting subject, and it appeals to the man connected with the small hospital. We are occasionally up against a stiff proposition as to what is best to do in these cases. In my work we have tried to be conservative and tried different methods, and personally I think the abdominal Cæsarean section is by far the easiest method. Take as an example a primipara who is having convulsions, and try a rapid dilatation of the cervix in the delivery of that child. I am frank to say that I can do an abdominal section in less time and with more safety than I can the dilatation. It may be that some of our men are able to handle it better the other way, but the abdominal route is a comparatively easy operation, only taking a short time, and the results, so far as mother and child both are concerned, are certainly better in my hands by this method than by any other.

I am sure this section was glad to hear from Dr. Leigh in regard to the question of gas oxygen, and, as Dr. Leigh says, you have but to try it, but when you try it you want a skilled anæsthetist.

Take these cases of Cæsarean section—it does not take long for an operation, and the patient is awake and in good shape practically when she leaves the table.

Thanks to Dr. Leigh, his clinic has been a great help to the men of the South. For a long time he has been an advocate of the gas oxygen. It is a splendid method.

I thank the doctor for presenting this paper to us today.

Dr. Rigdon Dees, Greensboro: I think Cæsarean section as a routine practice is not the best thing for all patients. Take into consider-

ation men out in general practice who see the greater per cent. of eclamptic cases, sometimes far removed from a hospital and removed from capable and competent surgeon and nurse, and the question of time a factor. The method described by Dr. Dickinson I think is the best all round method, except that Dr. Dickinson recommends rapid dilatation. If one will take the slow method of dilatation, or Harris' method, there will be less hazard to the mother and child and less trauma than in a Cæsarean section. The only feature of this method is a liability to traumatize the cervix and soft parts, and certainly is this true in a rapid dilatation, and later—ten to twenty years—or when the patient arrives at the age of forty to forty-five, we are confronted with an epithelioma or cancer of the cervix. If the general practitioner, or the one who sees the most of these cases, would have the cervix operated on later and these lacerations repaired, it would eliminate to a great degree the cancer of cervix which sometimes later occurs. A torn cervix means the point of election or fertile field for cancer in after years.

Dr. Stanton, closing the discussion: I thank the gentlemen for the discussion. All seem to be agreed on one point, namely, emptying the uterus, as the most essential thing to do. This I will admit can be done by dilatation, but only under an anæsthetic, whereas a Cæsarean section can be done under local anæsthesia, and almost as quickly as dilatation can be brought about. The kidney is the organ that suffers most in the class of cases we are discussing, and we should strive to minimize the burden the kidneys are bearing, and also to lessen reflex by minimizing trauma.

It is the convulsion which kills, and whatever the factor that causes the convulsion, it seems that it is augmented by the child in the womb, as the convulsion, as a rule, ceases after delivery.

After fifteen years of dealing with these cases by the dilatation method, and losing more cases than was satisfactory, of late years I have depended upon Cæsarean section, and find it more satisfactory, having a lower mortality.

Dr. Dickinson commenced practice in my town, and I realize now that I started him wrong and he will not depart from the error of his way.

THE SPREAD OF CANCER KNOWLEDGE

Dr. Ben F. Royal, Morehead City

Every man is to some extent his brother's keeper. It is always the duty of the man who knows to enlighten the man in ignorance. The modern missionary idea is a direct outgrowth of this law, and today the world cedes the point that missions are worth while.

The few minutes allotted to this paper are to be filled with things practical far more than with things scientific. If I can show you that the one missionary of today is the practicing physician, and that his field is right here at home, and that it is his duty to keep people well and comfortable here on earth instead of, primarily, preparing them for entrance into Heaven, then this effort will have been worth while.

Cold blooded statistics tell us that in excess of eighty thousand people have died of cancer since this section last met, right here in America. Statistics tell me to inform you that on the law of general averages one out of every twelve of you men who will reach, or who have already reached, the age of thirty-five will have cancer and of your wives and daughters one in eight will be a sufferer from that disease, and, furthermore, under the present state of general ignorance she has only ten chances in one hundred of getting well.

The term "cancer problem" has been an often used phrase during the past few years. Many individuals and several deeply interested, highly endowed, thoroughly equipped scientific groups of men have labored long and painstakingly over this problem, but until this good hour the end is not yet in sight, for even the exact causative factor has not been determined. While this is to be regretted, yet much has been learned. Unfortunately, however, the known facts are not generally practiced by the men who should know the most about them, and by the laity not at all. The medical man sees cancer kill largely through the eyes of the indifferent; the layman witnesses the same sad spectacle through the eyes of the ignorant. That either should be compelled to witness the event means that, in ninety-five per cent. of the cases, somebody has blundered. The term "safety first" has its deepest significance when the medical man applies the principle to the patient he is examining. There are two conditions with which the practitioner meets that he must handle with gloves off, and about which he must be brutally frank if necessary—tuberculosis and cancer. The vast majority, yes, practically all, of these cases are curable early; not one, late. The physician knows this and the layman does not; therefore, as your brother's keeper, it is your duty to enlighten him.

The whole idea of this paper is to preach the gospel of cancer knowledge. Forget, if need be, that there is much unknown about the disease and preach in season and out of season the known fact, and thereby greatly decrease the mortality of this great plague. Just a few years ago tuberculosis was killing people to such an extent that it was branded "The Great White Plague" and the profession, realizing that something had to be done, began a campaign of education that has, in just a few years, checked in most localities the rapid increase and has even materially lessened the death rate from that disease. Whatever has been accomplished in the prevention and cure of tuberculosis has been accomplished through enlightenment. The results obtained have been brought about simply because the men who knew told the men who did not know how to keep from contracting the disease, and to the individual already infected they preached the known method of treatment and cure, and thereby have added to the general average of human life.

Today in certain parts of the world the mortality from cancer is half that from tuberculosis, and right here in America the death rate from cancer among women is even greater than that from tuberculosis. Is there one-half as much said about its prevention, early diagnosis, and cure?

I realize that in discussing tuberculosis one refers primarily to a lung condition, whereas, in discussing cancer, from the standpoint of the gynecologist at least, the discussion must of necessity relate to the vagina, uterus and the breast, and just to that extent popular discussion cannot, with propriety, be as widespread. I realize, too, that the average woman will consult her physician about a chest condition and take all kinds of trouble with temperature records and weights, when through a false sense of modesty she will remain at home and "hope that everything will come out all right," with her suspicious cancer when the necessary effort to remove doubt means a thorough examination with its attendant embarrassment. It is this period of "hoping," with its necessary delay, that makes most cases hopeless.

According to Judd, eighty-five per cent. of all lumps in women's breasts are malignant when they first present themselves for examination, and of the remaining fifteen per cent. one-half will terminate in cancer if the woman lives long enough. If the average woman who discovers a small lump in her breast realized that she had ninety-two and one-half chances in a hundred of being a cancer death from that lump, do you believe that she would sit idly by and watch the lump grow from the size of a shot to that of a hickory nut before having the

necessary treatment instituted? Do you believe that the old lady, years past the menopause, who discovers that she has a bloody vaginal discharge, would joke about her condition and tell the neighbors that she had renewed her youth, if she knew the portent of that blood? It is somebody's duty to inform these victims that they have a veritable "sword of Damocles" hanging over their heads. It is somebody's duty to tell these women that there was a time when their cancer was not a cancer, and at that time the percentage of cures under proper treatment numbered about one hundred; whereas, with each day's delay, after the growth passes the dividing line and actually becomes malignant, the percentage of cure decreases until finally the day of salvation is passed and the mortality is one hundred per cent.

If I were called upon to make one criticism of Providence, I would say that a mistake was made when incipient cancer was made so near painless. Kelly, quoting Waldstein's figures, in reporting the initial symptom in a series of two hundred and nineteen cases of uterine cancer, found one hundred and twenty cases of a typical uterine bleeding and seventy-five cases of leukorrheal discharge; in sixteen cases there was a simple increase in the quantity of the menstrual flow, and in only seven was there any pain, and this was noted as a sacral backache. The patient who waits for the breast lump or the uterine condition to become painful usually has but little longer to wait for the undertaker, the preacher and the flowers. If early cancer were as painful as toothache, the mortality rate would be cut seventy-five per cent. in one year. It is pain that brings the average patient to the doctor, and since pain comes late in cancer, and usually as the result of secondary infection or pressure, it naturally follows that most diagnoses are made late, and as a further natural consequence there is a high recurrence and a high mortality rate. If cancer, then, is such a painless disease how is the patient to know when the disease is present? It is somebody's duty to inform womankind that her best life insurance policy is a semiannual examination by a competent physician. It is the duty of someone to cause every woman to look with fear and distrust upon any unnatural vaginal discharge, whether bloody or leukorrheal. Every woman should know that ninety-five per cent. of all women who have borne children have some degree of tear, and that unhealed tears and imperfect scars are a favorite site for beginning malignancy. Women should be told and be made to know that for all practical purposes a breast lump means cancer. She should see printed, and have verified by her doctor, the statement that postclimacteric bloody vaginal discharge means cancer. It is somebody's duty to womankind to make it clear that most precancerous lesions are amenable to treat-

ment by local measures which offer a very high percentage of cures, and to those requiring operative measures for relief there is almost no mortality.

Unfortunately, the little that is known about cancer by the average woman is that some one of her acquaintances once had cancer and was operated upon for the disease and eventually died of a recurrence. To the uninformed mind the reasoning is clear that once a cancer, always a cancer, and that to operate is to spread the disease and to make it grow faster. What this woman should be told is that the cancer made its return because of a late diagnosis, with a necessarily late operation, when the chances for cure are small. She should know that had her friend known the danger signals, and had she informed her physician early, then the operation would, in all probability, have effected a cure. In a word, every woman should be taught the danger signs that precede cancer. She should be placed on her guard by the man who knows and then cases would be seen in their incipiency instead of in the borderland and beyond. How then is this knowledge to be spread? As I see it there are two ways. First, and I believe most important, is by the family doctor. He is the man whose word is given most consideration. He is the man who can and should view suspicious evidence with a suspicious mind. He should be perfectly frank with his patient and insist upon thoroughly examining every woman who presents any of the danger signals of cancer and when a suspicious precancer lesion is found he should preach prevention of cancer and hope of cure. It is to the family doctor and not to the specialist that a woman who suspects herself of being a cancer victim first applies, hence it is his privilege and his duty to add to her future happiness and longevity by accurate information and proper advice. Women talk, and it does not take long for a doctor to acquire a reputation for thoroughness when he gets the examination habit.

Every man who operates sees women occasionally who have been examined, sometimes more than once, and who have been given to understand that there was no serious trouble present. Many such cases have their suspicion allayed by the assurance from the doctor that they are passing through the "change of life." This term covers a multitude of diagnostic sins. Most errors, however, are the result of careless or indifferent examination and not of ignorance.

The second way to spread this knowledge is through tactful, not too technical, press articles. There are several women's magazines in this country into which any short cancer article could be inserted and reach hundreds of thousands of women each month, and I will venture the

opinion that with a five-year publicity program faithfully carried out, a material reduction could be effected in America's cancer death rate.

Now, to bring the matter nearer home, I will again predict that just one page of our most excellent Health Bulletin designated "The Cancer Page," and given over in each issue to some phase of the cancer problem, would in a very few years materially lower the cancer mortality in North Carolina. And after all is said and done, can you conceive of a bigger or a better work for the North Carolina physician than to prevent the untold suffering of the cancer victim and to prolong the life of the average North Carolina woman?

DISCUSSION

Lt. Col. J. T. Burrus, High Point: I rise to most heartily endorse and to put every emphasis on the importance of Dr. Royal's paper. I hope he will cause a sufficient number of reprints to be made so that every physician in North Carolina may have this paper. I am sure that all of us are too careless, and fail to investigate properly our cases, and the result of this is frequently cancer. It is allowed to go from the local condition to a constitutional trouble. I am very glad, Dr. Royal, that I could hear your paper.

Dr. Southgate Leigh, Norfolk, Va.: I venture to say that you have no paper on your program of more vital importance than the one read by Dr. Royal. The question of cancer education has been fearfully neglected. Why, I do not know. Some years ago the Tri-State Medical Association, as the members here know, appointed a committee on cancer education, and that committee did considerable work. The committee itself and its members got out at least a dozen papers. Reprints of these papers were widely distributed and, I believe, did a great deal of good. The starting of that work came from a paper by Dr. Taylor, of Richmond, on "Cancer of the Uterus," and in his opening words Dr. Taylor said "Within the sound of my voice and within sight of this building, there stands an institution which is today doing more harm in the State of Virginia than any dozen hospitals are doing good," referring to the Kellam Skin and Cancer Hospital. *The Ladies' Home Journal,* and I think *Collier's Weekly,* took up the work, and accomplished much good.

There is a National Commission on Cancer Education in New York City, which formerly did some effective work, but, on account of war activities, has been rather quiet in the last few years.

The committee of the Tri-State succeeded in getting the boards of health of North Carolina, Virginia, and South Carolina, to issue

special bulletins on cancer education. I believe that there ought to be in *every issue* of these bulletins an article on this subject. In other words, it should be kept before the public and the profession all the time. While the Public Health Service is doing great good in protecting against venereal diseases, it could do better work by taking up cancer education, which is more vital and important.

In connection with cancer in other parts of the body than the uterus, there has been, generally speaking, a good deal of improvement, especially with cancer of the stomach, liver, and breast. But the most horrible situation, and most neglected, is that of cancer of the uterus. We all of us see, from time to time, the most pitiful cases in comparatively young women, practically all of which could have been saved if they had applied for treatment in time. The trouble lies with the doctors. They do not themselves recognize the danger signals, and do not warn their patients. Women do not understand that leucorrhea and profuse menstruation are signs of disease. Many a woman goes on into cancer, thinking that she is having "change of life." There is a remedy. Every general practitioner should, to a certain extent, be a gynecologist. The general practitioner looks upon gynecology as something beyond him—something uncertain—and the majority dislike it more than anything else they have to do in medicine. Medical schools are not paying the proper attention to gynecological examinations.

Every practitioner, especially in the country districts, not close to hospitals, ought to have an office hour two or three times a week at which he will have a woman attendant. Women will not go to him unless he has a woman attendant, and I do not blame them. By doing this he will not only discover a large number of precancerous and early cancerous conditions, but he will have a very large increase in his practice, and greatly add to his income.

I hope that you are sufficiently interested in this matter to ask your council to appoint a committee on cancer education, and that it be a standing committee, and that you refer to that committee the most excellent paper that has just been read by your member, Dr. Royal.

Dr. Royal, closing the discussion: The one point concerning cancer that I did not mention in the original paper and to which I wish to call your attention is that cancer is on the increase. As a result of an increased knowledge of the etiology and pathology of diseases in general, much has been done in disease prevention, and in practically the whole domain of medicine and surgery statistics show a reduction in both incidence and mortality. Cancer furnishes the one big exception

to this rule. This increase is not merely an apparent increase, attributable to refined methods of diagnosis, but a real increase borne out by many investigators.

What I have had to say has been spoken from the viewpoint of the gynecologist. The same general rule applies in the domain of the general surgeon. The man or woman who has been perfectly well until around the age of 45, and who then begins to develop "indigestion" is, in the vast majority of cases, a surgical case. Almost every operator sees such cases who, after going the rounds of the medical men, come to the surgeon with a palpable mass in the epigastrium and a progressing jaundice—a hopeless case. The man with the cracked lip which fails to heal promptly is wasting valuable time applying salves and lotions. This man often makes his way to the surgeon's office only after the glands of the neck are involved. Sinuses and fistulæ in various parts of the body, especially about the anus, are fraught with great "malignant possibilities." The pigmented moles of the body, especially when they are so situated as to become irritated by the clothing or by coming in contact with the chair back, are apt to take on a lawless growth and become fearfully malignant. And so the list grows. My contention is that to reduce cancer mortality a program of education must be undertaken that will reach the general public, and when once the avarage man learns of the potential danger from malignancy of the now simple and benign abnormality, he will go to the man who can cure him with a minimum of expense and at a minimum of time loss.

I thank the gentlemen for the discussion of my paper.

EYE, EAR, NOSE AND THROAT

THE EYE AS AN AID IN DIAGNOSIS AND LOCALIZATION OF INTRACRANIAL LESIONS

Dr. Louis Nelson West, Raleigh

In the routine examination of patients with intracranial lesions or disease, in order to make a more correct diagnosis, and if possible to localize the trouble, we wish to determine the following points:

1. The sensibility of the cornea.
2. The size, shape, and reaction of the pupil.
3. The acuteness of vision and the field of vision.
4. The fundus of the eye and of blood vessels. The optic disc as respects atrophy.
5. The condition of the muscles of the eye, nystagmus, squint or paralysis.
6. Any anomalies of the eye.

CORNEA

Disturbances of sensation in the cornea do not manifest themselves by any special objective or subjective phenomena. The normal cornea is not sensitive to pressure, and it is sensitive only to heat in the peripheral portions (not in the center). Its entire surface, however, is sensitive to pain. The sensibility of the cornea is tested most conveniently by touching the cornea with a piece of absorbent cotton, care being taken here to eliminate fear from actual pain. In normal conditions when the cornea is touched the eye will wink, and the patient also will give evidence of some discomfort. In other cases the wink is absent, indicating a partial or complete anæsthesia. After section of the ophthalmatic division of the fifth nerve, and after instillation of cocaine, there is complete anæsthesia. Neuroparalytic keratitis is a condition that is frequently the cause of anæsthesia of the cornea, and this is due to a lesion close to the gasserian ganglion. Anæsthesia is sometimes present in tabes, but is always accompanied by cutaneous numbness of the region supplied by the trigeminus. If the anæsthesia is unilateral, without any diminished facial sensation, it may mean a tumor of the cerebellum on the same side. In such cases there will also be, of course, nystagmus to the same side. Diminished sensation of one or both corneæ may be a sign of hysteria when corroborating evidences are found. Diminished sensation of one cornea, therefore, means a lesion of the fifth nerve of that side, a lesion of the cerebellum of that side compressing the fibres of the fifth nerve, or hysteria.

PUPIL

Normal size 2¾ to 4¾ mm. Only in natural sleep is the pupil in repose, and it is then strongly contracted. Abnormal contraction of the pupil is the result either of excitation of the third nerve, spasm of sphincter muscle, or of enervation or paralysis of the sympathetics, paralysis of the dilators, or it may be the result of purely mechanical causes—the intracranial affections that stimulate or irritate the nerves of the sphincter without destroying the cells with which they communicate. Paralysis of the cervical sympathetics is always accompanied by myosis, but the pupil still reacts to light and eserine, and will dilate with atropine. Associated symptoms are ptosis and anæsthesia of the fifth nerve. There is no general disease so frequently the cause of myosis as syphilis, notably the cerebrospinal form, that is, as tabes and general paresis. It occurs in the first stage of tabes and even to a high degree after complete tabetic optic atrophy, whereas in other forms of optic atrophy there is ordinarily mydriasis. Tabetic myosis resists the action of cocaine and atropine.

MYDRIASIS

Relative dilation of the pupil, like myosis, may be functional, i.e., due to excitation or irritation of the cervical sympathetics, or due to an intracranial or cervical lesion, to the influence of psychic and sensory phenomena, or to paralysis of the sphincter. In functional mydriasis the light and convergence reactions are present. Paralytic mydriasis is really paralysis of the sphincter of the pupil, and is the effect of a drug or disease. Meningeal irritation may cause a spasm of the sphincter muscles with contraction of both pupils. Compression of the nucleus of the nerve for the sphincter muscles or of the fibres in the third nerve trunk will cause dilation of the pupil, but since the nucleus of the sphincter and that for accommodation lie close together, you will have paralysis of accommodation, and the patient will not be able to see near objects clearly. Usually the light reaction is also absent. Of clinical interest, ophthalmoplegia interni occurring in one eye and lasting a long time is almost always due to a luetic nuclear lesion. Argyll-Robertson pupil is a condition in which light reflex is lost and convergence is present, and is found to be associated with anomalies of the knee-jerk, etc. The condition is to be explained by a break in the reflex arc for the light reaction. It is now generally agreed that the break in the arc must be in the fibres connecting the primary visual center with the sphincter nucleus. In support of this, a tumor nonleutic, in the region of the third ventricle, by pressure

may produce Argyll-Robertson pupil. It is, however, almost without exception a symptom of syphilis of the nervous system. In cortical blindness from circulatory or other lesion of the occipital lobe, the pupils retain their normal diameter and their reaction to light. It may be said that blindness resulting from lesions that are not cortical has for effect mydriasis with absence of light reflex. In acute meningitis, septic sinus thrombosis, brain abscess, bilateral mydriasis is not rare. All trauma, neoplasms and inflammations capable of implicating the third nerve anywhere along its course from the nucleus to the globe may be a cause of mydriasis, contrary to the former conceptions, which were to the effect that the lesion in question must produce complete paralysis of the third nerve. They may be limited to the pupillary or accommodative fibres.

Consensual reaction is when the pupils contract equally when one is illuminated. Now if the pupil of the side exposed to the light does not contract, but the other does, and on changing the light to the other side, consensual reaction is lacking, this indicates a peripheral lesion in the nervous apparatus for innervation of the pupil on the side first examined. If now the pupil on the side exposed to the light does not contract, nor does its fellow, but changing the light to the other side causes contraction of both pupils, this indicates a profound trouble either of the apparatus concerned in peripheral perception or transmission. The consensual reaction is lacking in both eyes only in lesions of the peripheral or the central nervous system, most probably syphilitic.

FIELD OF VISION

The perimeter findings in choked disc are as varied as the condition that causes it. In some instances, at least, in the early stages no external evidences of the presence of choked disc may be found other than the ophthalmoscopic picture. The extent and stage of the papillitis will largely determine the perimeter findings. There is, as a rule, contraction of form and color field. It may be concentric or sectorlike or the color field may be reversed, and there is as a rule a rather rapid loss of the nasal field. However, all of this is usually a late phenomenon, and indicates nerve fiber degeneration. The reversal of the color field should also be remembered as a frequent symptom of hysteria, and hysteria in turn is often associated with patients suffering from brain tumor.

Central scotomata is chiefly due to affections of the papillo macular bundle. This group of neurons passes in the temporal sector of the optic nerve and is particularly susceptible to pressure. Central scotomata

of one eye due to pressure is found with frontal lobe tumors of the same side and also with disease of the posterior ethmoid cells.

FUNDUS OF EYE

The ophthalmoscopic changes in the nerve head that interest us are atrophies and edema. The simple atrophy in the great majority of cases is a symptom early or late of tabes.

The papilledema, as it occurs in brain tumor, is now generally regarded as a purely mechanical character coming on in both eyes at about the same time. The starting point of papilledema in brain tumor is the blocking of the passage between the third and fourth ventricle and the distention of the lateral ventricles. This liquid is forced in the subdural space and out in the subdural lymph space of the optic nerve. The early or late appearance of papilledema depends much upon the situation of the tumor. A tumor blocking the passage between the third and fourth ventricle will cause early choked disc and decompression here will not give relief. Tumors distant from the third ventricle do not block the passage until late, and decompression is indicated. If the tumor cannot be located and the optic disc shows signs of edema with failing vision, a decompression should be done at once in order to save vision and with the hope that later the tumor will give some localizating signs and then be removed. If the vision has been reduced through atrophy of the nerve, further atrophy may be checked, but the lost vision will not return.

Optic atrophy and pallor both may affect only a sector of the disc, usually the lower temporal portion. Temporal pallor is a symptom of multiple sclerosis, alcohol and tobacco poisoning, though it does not necessarily give any indication of the gravity of the disease.

In order to better understand optic atrophy, it is necessary to remember that the optic nerve fibres are the axis cylinders of the ganglion cells of the retina. When the ganglion cell is destroyed the axis cylinder degenerates throughout its entire length—this is ascending atrophy. If the fibre is cut across in its course to the brain, the fibres degenerate in both directions, ascending from the lesion to the brain and descending from the lesion to the retina. The other causes of atrophy, besides toxic, are mostly mechanical. There are forms of optic atrophy descending from lesions of the optic nerve behind the entrance of the central retinal artery as far back as the chiasm in which loss of function precedes the atrophy by a long time. Even after the atrophy is complete the retinal vessels may remain normal for several years.

The chief cause of secondary atrophy varies in frequency with the age of the subject; in childhood it is due chiefly to neuroretinitis, secondary to meningeal infections, pneumococcus infections and to suppuration of the middle ear, and these causes are often bilateral. In adults, syphilis stands first.

The diagnosis of beginning papillitis is clear, if in addition there are present signs of retinitis or chorioretinitis. Often the hyperemia extends to the entire papilla, the physiological cup is obliterated, and the borders of the disc disappear. Choked disc is most always bilateral, though seldom developed alike in both eyes. A certain localizing value has been ascribed to the condition when occurring first in one eye as indicating that the neoplasm is on the corresponding side. True, simple inflammatory or infectious papillitis is often monolateral when caused by local lesions of the orbit or septic cellulitis extension from the sinuses of the nose; if from a general infectious disease, it is frequently monolateral. Choked disc when present is one of the most valuable signs of tumor, but it must be borne in mind that it is absent in all cases at an early period and in most cases until a late period. Its evidence is supposed to be earlier with tumors involving the cerebellum than in those of the cerebrum.

The degree of visual acuity that accompanies choked disc is most variable. The sight often remains good even into the advanced stages; or it may be profoundly affected almost with the first signs of change in the papilla. In these cases normal central vision may be associated with great narrowing of the peripheral field. Rapid and early loss of sight calls for urgent palliative measures (decompression).

The ocular palsies of central origin are largely the result of degenerative changes in the nerve cells and in the blood vessels of the brain and spinal cord, and for these syphilis is directly or indirectly responsible. This is also true as to most of the neoplasms that figure in the etiology of deviation of the globe.

The paralysis is peripheral when the lesion is situated anywhere along the course of the nerve between its nucleus and its termination in the muscle.

Peripheral paralysis is divided into extracranial and intracranial. In order to decide as to whether or not a given case is peripheral or central in origin, it is necessary that one bear in mind the anatomy of the nerve supply of the ocular muscles. The superior oblique and externus rectus have their special motor nerve. All the rest, including the levator and the intrinsic muscles of the eye, are supplied by the third, hence paralysis of the ocular muscles occurs singly or in groups. Paralysis strictly limited to one of the muscles having its own individual nerve

warrants the supposition that the lesion is peripheral, and one looks carefully into the history as to some such cause as syphilis or fracture of the base of the brain, infections of the middle ear, or extracranial lesions or trauma. When all the muscles innervated by the third nerve are paralyzed it is equally probable that the lesion is peripheral. If the inferior oblique, the sphincter of the pupil and ciliary muscles are alone paralyzed, one may conclude that the lesion is orbital.

Paralysis of all the muscles of the eye, both external and internal (total ophthalmoplegia) may be set down as peripheral, *i. e.,* orbital or basilar. Associated symptoms of the fifth nerve are frequently present. If there are no associated symptoms and one notes besides that there are other symptoms pointing to trouble of the oblongata, the lesion may be called nuclear. This is particularly true when the syndrome assumes the type known as ophthalmoplegia externus. This is when the external ocular muscles only are involved, and the pupil and ciliary body still retain their function.

Nuclear paralysis of the oculo motor is, in consequence of the great extent of the nucleus, seldom total. The sphincter pupilla and ciliary muscle generally remain unaffected. A nuclear lesion of the abducus causes, as we know, not isolated paralysis of the externus rectus of same side but conjugate paralysis affecting the rectus externus on the side of the lesion and the rectus externus of other eye, the result being conjugate deviation toward the same side. Further nuclear abducus paralysis is accompanied by facial paralysis of peripheral type, owing to proximity, as the nerve turns around the sixth nucleus.

In intranuclear paralysis of the third, the sphincter and ciliary muscle practically never escape, as the nerves are in close contiguity with those of externus ocular. Intranuclear abducus lesion causes isolated paralysis of externus rectus, not conjugate paralysis of that and rectus of other eye.

When we have progressive pathology (gummatous tumors, or meningitis) in the neighborhood of the third emergence, ptosis is usually the first symptom. Fractures of the base involve most frequently the abducens, which occupies a very exposed portion at the summit of pyramid of the petrous bone. Of the irritation symptoms affecting the ocular motor, nystagmus first deserves mention. Lesions near the abducens nucleus may cause nystagmus and in rare cases conjugate deviation, the deviation being to the side of the irritation.

In lesions of the cerebral peduncles we have in addition to the pyramidal lesion, which causes a complete hemiplegia of the opposite side, involvement of the roots of the third, which leads to oculomotor paralysis on the same side as the lesion (Weber's paralysis).

LESIONS OF THE CORTEX OF CUNEUS

A unilateral lesion has homonymous lateral hemianopsia with retarded pupillary reaction. If lesion is bilateral as in tumors of falx cerebri or toxic disturbances as in uremia, we have cortical blindness with the pupillary reaction unaffected. Gunshot injuries of the occipital lobe producing hemianopsia have been very frequent in the past war. Gordon Holmes in *Brain* (1916) points out the very interesting fact that each macula lutea has a representation in one occipital lobe only, not in both.

LESIONS OF THE WHITE MATTER OF OCCIPITAL LOBE OF ANGULAR GYRUS

Bilateral lesions involving the visual memory centre in the cortex or the association fibres which pass from the centres cause object blindness or sensory aphasia.

SENSORY APHASIA

A lesion affecting the visual word centre, a lesion affecting either of these centres, or a lesion affecting the fibres which connect these centres either with themselves or with the two motor centres, will produce aphasia. The character of the aphasia will depend wholly upon whether the individual centre is affected, whether the individual centre plus the fibre leading to another centre is affected, or whether one or more centres are affected. The visual word centre is situated in the angular gyrus. The type of lesion that usually causes aphasia is circulatory and therefore apoplectic. Rarely is it due to the presence of a new growth.

PTOSIS

Congenital ptosis is, as a rule, bilateral and partial, and is usually accompanied by other ocular anomalies such as squint, nystagmus, coloboma of the nerve tract, opacities of lens, etc. Not infrequently there is undevelopment of the entire organism.

The anatomical causes are usually (1) Absence of the nerve centre, or of the conducting neurons. Injury at birth may cause a traumatic ptosis by direct injury to nerve. (2) Arrested development of the levator.

Acquired ptosis is more important. Ptosis, through which the function of the motor nerve of the levator is suspended or its substance destroyed, is either peripheral or central. Among the peripheral causes are tumors, hemorrhage, inflammation and abscess in the orbit or from accessory sinuses.

Lesion involving the nucleus of the third nerve or immediately surrounding it constitutes the central cause of paralytic ptosis. Of

the primary causes of this form of ptosis, whether peripheral or central, syphilis stands at the head. Syphilitic ptosis may appear three weeks or thirty years after the initial lesion, and is nearly always accompanied by paralysis of other branches of the third nerve, and is at times seen in connection with other phases of the disease, such as tabes, etc.

Isolated paralysis of the levator branch of the third nerve is strongly suggestive of a central lesion. Other affections of which ptosis may sometimes become a symptom are syringomyelia, Basedow's disease, cerebral tumor, multiple neuritis and simple senility, and, in some, poisons, etc.

NYSTAGMUS

When nystagmus dates back to infancy it has no great diagnostic significance, but a well marked nystagmus coming on later in life is always significant. It may come with the most diverse intracranial condition, but certain types have definite significance. The occurrence of nystagmus in disease of the spinal cord is without doubt an indication of the involvement of the cerebrospinal nervous system, the cerebellum or of parts adjoining it.

The diseases of the nervous system in which nystagmus occurs are multiple sclerosis, Friedreich's ataxia, alcoholism, syringomyelia, brain tumor, cerebral hemorrhage, and softening.

There may be a nystagmus when a muscle of the eye is about to be paralyzed or when it is recovering from a paralysis, and here the twitch is in the direction of the muscle affected. Marked nystagmus in looking to one side may mean a pontine lesion, nystagmus coarse and slow to one side and fine and rapid to the other may mean a cerebellar lesion on the side of the coarse movement.

Pulsating exophthalmos is generally due to a fracture of the middle fossa of the cranium, which tears the internal carotids which permit communication between the carotids and the cavernous sinus. The other forms of exophthalmos of moderate slow development or of rapid development are generally local, and are usually in the socket.

A LESION INVOLVING THE OPTIC NERVE

Total destruction of the optic fibres peripheral to the chiasm produces, of course, complete blindness of the eye and the pupillary reflexes are not evoked by this eye, but may be by the other eye. If only a portion of its fibres are destroyed we have instead scotomata and narrowing of the field of vision, etc.

LESION OF THE CHIASM

If the lesion involves only the mesial portion of the chiasm, as in cases of tumors of the hypophysis, hydrocephalus of the third ventricle and empyema of the sphenoid antrum, the result is blotting out of both temporal halves of the field of vision. If, on the other hand, the external portion of the optic nerve decussation is destroyed, the mesial remaining unaffected—a condition which is possible by aneurysm of both carotids or gummatous foci at the base of the skull—we have suppression of function in the outer portions and hence nasal blindness.

The result of destruction of one-half the chiasm is blindness on the side of the lesion and temporal hemianopsia on the other side.

LESIONS OF THE OPTIC TRACT

All of these lesions cause homonymous lateral hemianopsia for the halves of the fields contralateral to the lesion. If the lesion is peripheral to the point at which the reflex fibres to the pupillary nucleus are given off, a ray of light thrown on the blinded half of the retina causes no contraction. If the lesion is central to the point at which the above reflex fibres are thrown, illumination of the insensitive half of the retina does, on the contrary, cause contraction of the pupil.

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TREATMENT OF DACRYOCYSTITIS

J. G. Johnston, M.D., Charlotte

The trite remark that the first thing to be taken into consideration is the cause of the disease is as appropriate here as anywhere else. In a great majority of cases there is some underlying condition, usually in the nose, that is responsible for the disease. It seems a far cry from an ordinary epiphora to the treatment of a lachrymal abscess, but with a pathological condition in the nose or in the lower part of the lachrymal canal that will stop the passage of tears and with the

ever present germs to set up pus formation, you will ere long have to treat a lachrymal abscess. Therefore the first thing to do is to treat the cause. The nasal mucous membrane must be gotten in good shape, so as to prevent an upward extension of the infection. If there be any bony malformation in the nose it must be corrected, by removal of the inferior turbinates or whatever may be necessary, so as not to impede the free passage of tears. If your trouble is in the lachrymal canal, be it stricture of the canal, or hypertrophy of the lining membrane, probing resorted to in a judicious manner will often overcome the trouble temporarily, at least. I say temporarily advisedly, for a great many of these cases will remain in good condition for a few months or years possibly, but upon a slight provocation will have a return of the trouble. In some cases syringing the sac will relieve the condition. In infants there is sometimes a thin membrane over the mouth of the lachrymal canal that prevents the passage of the tears. This must either be ruptured by probing or in some more convenient way, and the trouble will usually pass away in a short while.

Many of these cases in which the mucous membrane of the canal is thickened, thereby occluding the lumen, and with no bony constriction of the canal or blocking of its exit in the nose by an enlargement or nasal growth, may be relieved and sometimes permanently cured, by the installation in the eye of a simple wash containing a weak solution of adrenalin chloride. If this is going to be effective, it usually shows its good results in a few days, but even in these favorable cases it should be continued for some time in order to allow all hypertrophy of the membrane lining the canal to disappear.

If this is not effective and the progress of the disease shows itself by increased lachrymation and swelling over the lachrymal sac, pressure upon which causes either a purulent or a glairy secretion to be expelled from the canaliculus, they may be treated by expressing the contents of the sac several times a day by pressure upon it, followed by washing out the sac with boric acid or normal salt solution, after which the adrenalin solution may be instilled in the eye as before. In a limited number of cases this will bring about recovery.

Probing the nasal duct comes next in line of treatment of these conditions. In those cases in which you have hypertrophy of the mucous membrane lining the duct, or a permeable stricture, this method probably presents the most satisfactory manner of handling these cases. Preliminary to this, of course, it is necessary to either slit the canaliculus or dilate it with a pointed conical dilator in order to enable the lachrymal probe to be inserted. This rather painful procedure can be much modified by the injection of a weak cocaine solution into the

sac before the probing starts. If the probe has been passed properly and far enough the end of the probe can always be seen in the inferior meatus of the nose, thereby proving that the canal is open. Two ways of accomplishing the desired end in this manner are advocated. One is the rapid dilatation of the duct by inserting probes of different sizes, beginning with a small one and going rapidly up to a larger and still larger size at the same sitting, until a comparatively large probe has been passed. The other and slower method is to pass a probe of small calibre the first time, leaving it in for fifteen or twenty minutes before removing it. The patient is then given the adrenalin solution to use in the eye and is told to return in three or four days, at which time a probe one size larger is passed and allowed to remain for fifteen or twenty minutes as before. In this way we take probably several weeks to dilate the duct to its full size. Following either of these methods you may inject a few drops of argyrol solution into the sac and then wash it out with a boric acid solution. You must remember to wash out the sac well following the injection of the argyrol or you may have the unpleasant experience of having a case of argyrosis on your hands to worry you the rest of your natural life. I had this misfortune on one occasion in which I either failed to wash out as thoroughly as I should or the patient was peculiarly susceptible to argyrol, or there was some unknown reason, but all the same I had one of the prettiest cases of argyrosis of the conjunctiva that you ever saw. I do not know whether it ever cleared up or not, but the last time I saw her she had a bluish black eye that was anything but a pleasure to behold. So you see why I am cautious in regard to the use of argyrol. The probing must be continued at intervals for several months, otherwise, after an apparent cure, the patient will, in the course of time, come back with tears overflowing again or some of the other symptoms of lachrymal disease.

One other thing in this connection deserves mention, and that is the wearing of styles. These are supposed to allow drainage of tears, pus, or whatever may be in the lachrymal sac, through them or by them down into the nose. It is necessary to slit the canaliculus and insert the short bent end of the style in this cut, wearing it until it becomes necessary to remove it in order to clean it or remove some obstruction from its lumen. Theoretically they seem the proper thing to use, but practically few permanent cures are brought about through their use. Some cases, however, are cured.

Some authors advise and practice the insertion of a few strands of silk down through the nasal duct, the upper end fastened to the brow by adhesive plaster and the lower end brought out of the nose and

fastened to the cheek. This is left in place for several days. Others advocate passing the sutures through the nasal duct, tying the two ends together and leaving the silk circle in place for a sufficient number of days to be sure that the duct remains patulous. It has been suggested that, in order to make the cure more certain, every day or two the suture circle should be moved backward or forward through the duct, thus preventing the closure of the canal. After sufficient length of time has elapsed the suture is cut and then drawn out, either up or down.

An old operation that had fallen into disuse was revived by Toti, who makes an incision almost the same as if he were going to remove the sac. The sac and canaliculus, however, are carefully preserved, being drawn forward and outward, and an opening is made through the bone into the nose. This opening must be of sufficient size to make its closure very improbable. A portion of the inner posterior wall of the sac is now removed, as well as a part of the nasal mucous membrane at least equal in size to the part of the sac removed. The skin is now sutured and slight pressure dressing is applied. Toti regards this operation as being peculiarly adaptable to those cases in which an intractable fistula has developed. It certainly has the advantage of at least directing and carrying off the tears in the way that nature intended, even if not in the same channel. No attention is paid to the nasal duct. West has devised a procedure by which the external incision is done away with, all his work being done intranasally. He passes about a No. 4 probe as a guide and then going very carefully, in order not to break through into the maxillary antrum, an opening about 10 by 12 mm. is made through the lachrymal bone. The mucous membrane of the nose is first removed or elevated, and can later be used to assist in covering the cut surface of the bone and help prevent closure of the opening. The inner wall of the sac is now cut away so that the contents drain directly into the nose. The inferior turbinate is left intact, all his work being done above it. He claims excellent results in 90 per cent. of his cases which include epiphora, dacryocystitis, dacryoblennorrhœa, phlegmonous dacryocystitis, and lachrymal fistula.

When these things fail or for some reason are impracticable, we can always have recourse to the removal of the lachrymal sac. This operation is indicated when the previously mentioned methods of treatment fail to give results, or when you have a chronically enlarged sac that refills either with mucus or pus as soon as the contents have been pressed out. The lower end of the nasal duct may be patulous, but owing to an atonic condition of the sac walls there is no drainage into

the nose. This condition could probably go on for years and not give any serious trouble beyond the inconvenience of expressing the contents frequently, but in case of a purulent discharge if you should happen to have an injury to the cornea, you would, in all probability, have an infected ulcer, the consequence of which might be serious, to say the least of it. To overcome this danger we advise the removal of the lachrymal sac. There is no necessity for me to take your time by describing this operation, as it is contained in all the books. Besides, you know it as well as I. There are, however, one or two points that will help materially in the ease with which the operation may be performed. The dissection is facilitated a great deal by separating the sac first from its nasal side, later dissecting its orbital side loose. One important thing to remember in this operation is not to cut off your sac above until you have finished your dissection at all other parts, except severing it from its attachment below to the nasal duct. If this is done too soon you are likely to have sufficient hemorrhage to interfere very materially with the finishing of your work.

The next plan of treatment of lachrymal abscesses that I wish to speak of is the destruction of the sac by means of some strong cauterizing agent, preferably trichloracetic acid. Harold Gifford speaks very favorably of this method, so much so that he says he never intends to dissect out another lachrymal sac. The plan that seems to work best is to inject the skin over the tumor abscess so that the incision can be made as painless as possible. It is much better to have the sac full, as it is a great deal easier to enter than when the contents have previously been expressed. The incision should be sufficiently long to make the opening large enough to enable a cotton tipped applicator to pass readily into the sac. It is then mopped out clean and every part of the sac thoroughly anæsthetized. If this anæsthetization has been thorough there will be no pain whatever in the subsequent treatment. The skin around the incision should be covered with oxide of zinc ointment in order to protect it. The two sides of the abscess sac are now caught with forceps and held up while the application of a saturated solution of trichloracetic acid is made to every part of the inside of the abscess sac. This is best done by making a rather small hard ball of cotton on the end of an applicator and passing it down into every nook and corner of the cavity—paying particular attention to the lower angle where the nasal duct enters. When you think that you have certainly destroyed the whole sac, it is well to go over it again in order to make sure, for unless the sac is completely destroyed the work will not be a success. When you have completed this to your satisfaction you may or may not put in a small wick of iodoform gauze

as a drain. I don't think it makes much difference about this, as they seem to do as well one way as the other. A small compress is put over the obliterated sac and a larger pad over that so as to get as much pressure as you desire. In case the gauze drain is put in it is well to remove it in 24 hours, otherwise it may go for 48 hours before it is opened. If your work has been thorough, especially in the destruction of the sac, they heal rapidly and do not require long continued treatment. Recently I had a patient, a girl about twelve years old, who had a double lachrymal abscess. She had been treated by probing and otherwise for several months before coming to me, so I decided on the operative plan of treatment at once. This was too good an opportunity to compare the two plans of treatment—dissection and destruction—to allow to pass and this was accordingly done. The left was dissected out and the right was destroyed with trichloracetic acid. I watched them with a great deal of interest in order to see which would heal first. It seemed that the dissection would be the winner in this race, as it seemed to be well while the other still had some slight discharge. Just at this time the patient developed a purulent ophthalmia and in two days the dissection side had become infected and the abscess tumor seemed as large as ever. On being incised, cleaned out, and a pressure dressing applied, in a few days it was well again and has remained so until this time. The other side did not get infected, progressed rapidly and beat the dissection well by a few days. One advantage about the destruction method is that it can be done in the office and after the dressing the patient can go home, coming as often as necessary for the dressings. Too, it takes much less time than an ordinary dissection.

Of course, following this, as by the dissection method, you have the slight overflow of tears for awhile, but as a general thing this does not bother them a great deal, and in a few months gets so it is hardly noticeable. Few cases are so bad as to require a removal of the lachrymal gland, but that can always be done in case the overflow is too troublesome.

TWO INTERESTING ESOPHAGEAL CASES

Dr. John B. Wright, Raleigh

In reporting these two cases I shall simply state as briefly as I can the cases as they came to me.

Case 1.—A small boy about ten years of age. First saw patient October 7, 1918. Temperature normal. Pulse normal. No other examinations made. Gave a history of three days prior to coming to me of getting something in throat while eating dinner. Parents were away attending a funeral, which

was a very frequent occurrence during October and November. Upon returning home they were told of the boy's getting something in his throat at dinner. They had the child drink water, which he did. He also ate for them, but refused to eat at supper and at breakfast next morning. On second day he was taken to their family physician who examined him and found nothing, but advised them to take the child to a specialist. The next day they brought their boy to me. In the meantime the child refused to eat saying it hurt him to swallow. Inquiry as to what he had eaten for dinner revealed an ordinary country dinner with cabbage cooked with a piece of ham and while eating the cabbage he complained of getting something in his throat. I did not have an X-ray taken but put the child on the operating table, gave him ether and looked into the larynx and upper esophagus with a laryngeal speculum. I saw nothing. I then passed an esophagoscope and found just below the crico-pharyngeus, sticking in the anterior wall of the esophagus slightly to the right, a piece of bone which was very easily removed. The bone was sharp at both ends and about three quarters of an inch long. After the child waked we gave him some fruit to eat and found he could eat with very little pain. The loose end of the bone was pointing up towards me, making it very easy to remove, but rather strange, for the child had eaten several times since the bone had gotten in his throat. The main difficulty was not inability to swallow but pain upon swallowing. I dismissed the case apparently well. On October 28 the child's first cousin, who lived in Raleigh, came up to see me and told me the child was desperately ill with a fever of 103° F. and unable to swallow. I 'phoned them to bring the boy back at once and the next day, October 29, just 22 days later, they brought him back. He was indeed a sick patient, temperature 103° F. Pulse very rapid and weak, very much emaciated, a radiograph was made, which showed a large abscess between the trachea and esophagus, pushing the trachea well over to the left of the median line; operation advised. Incision made along anterior border sternocleidomastoid muscle. The lower one-fourth of the incision was really across the muscle just above its attachment to the clavicle. The incision was two inches long. The muscle was separated with blunt dissection and on down to the abscess cavity pushing through the areolar tissue. The abscess was found to contain at least an ounce or two of very foul odored pus and was located in the areolar tissue between the esophagus and trachea. The cavity was thoroughly cleansed and packed with moist iodoform gauze. This treatment was kept up two or three days twice a day and each time there would be at least an ounce and a half of very offensive pus. I then irrigated the cavity with Dakin's solution, which stopped the pus entirely in three days. I saw the boy in March; he was well and had no complications or trouble since he left the hospital last November. The question is, did the ham bone cause the esophageal abscess? I am indeed sorry I did not take a smear and ascertain the kind of bacteria we were dealing with. The appearance and temperature of the patient were similar to an acute purulent appendicitis and so was the odor of the pus when the abscess was opened.

Case 2.—Negro man, age 50 years. Came to hospital September 14, 1918, 3 p. m. I saw patient at 5 p. m. same day. Pulse 120. Respiration 28. Rectal temperature 99. Patient had difficulty in breathing, making considerable noise, so much so the hospital authorities insisted I hurry out. They feared some obstruction to the air passage. The history as given me by the party

who brought him was that twelve days prior to his coming to me he was feeling badly and had taken a large dose of quinine and lay down between two doors in a draught which had given him a severe cold and brought on one of his old attacks of asthma. This they thought would pass off in a few days, as he was frequently attacked with asthma during the fall of the year. He, however, was unable to swallow even water; when I saw him he could talk but was extremely weak and emaciated, breathed better than I had expected from the 'phone message I had received in regard to him. I passed a bronchoscope to the bifurcation of the bronchi and found nothing wrong with the air passages. This was done with no anæsthesia local or general. I then pased an esophagoscope and found the upper esophagus and lower pharynx filled with a large quantity of pusy fluid which I removed and mopped out with an argyrol solution and applied to the location of the pus a solution of adrenalin and ordered a nutritive enema given. Patient complained of pains in throat until about 9 that night, after which time he rested well and felt better the next morning. At 9 A. M. next day I passed esophagoscope into stomach and found no obstruction, so withdrew esophagoscope and fed patient six ounces of warm milk through stomach tube. He was very obstreperous and hard to manage, begging to be left alone, saying he had rather die than be treated so. At 3:30 the same day the stomach tube was passed and patient was given six ounces of water and six ounces of milk. He had rested better all day than any day since taken sick. At 6 that evening he was given 11 ounces of milk and some water through the stomach tube. An hour later patient vomited moderate amount of dark liquid with a few curds of undigested milk, rested fairly well during the night, and next morning patient was given 11 ounces of milk and about same amount of water through stomach tube. Soapsuds enema was ordered, which was given at 11 A. M. Enema returned, colored with a few white particles resembling mucus. At 3 the patient was given about a pint of milk and a glass of water through the stomach tube. He looked up at me and patted his stomach with his hand and said: "Doctor, this is the first time since I have been sick my stomach has felt natural. I feel lots better." I left him, he turned over and appeared to fall asleep. At 3:50 I was called and informed my patient was dead. I asked how the end came and was informed that the nurses had been passing to and fro. The patient was perfectly quiet, so much so one of the nurses went to him and found him dead. What was the diagnosis? Was it toxic, esophageal paralysis or central paralysis, or what? He never was able to swallow anything after waking from the sleep following the quinine, in the draught between the two doors, a period of 15 days.

DISCUSSION

Dr. T. C. Quickel, Gastonia: I wish to thank Dr. Wright for this excellent paper. Of course, we all frequently get up against the difficult proposition as to whether we have some foreign substance or material in the esophagus, and we are puzzled as to how far we shall go in searching for these troubles. We make often the mistake which I shall now relate as happening to me some time ago.

One morning I was called to a home to see a little eight-months-old child that showed some difficulty in respiration. The history was given

that the child had not seemed well the day before. When I got there the child had a temperature of 101, and showed some embarrassment of respiration. On examination I found considerable redness and inflammation. The child had vomited several times. On looking into the throat, I saw nothing local that would suggest a foreign substance. With the temperature and the swelling, I made the mistake of deciding that it was inflammatory. After that day the child appeared comfortable, but not normal. At the end of two days I dismissed the child, as it was playing and seemed in good shape, with the exception at times of a cough. Two weeks later the father came into my office with a little piece of metal, which he said the child had coughed up. I do not believe that happens to me alone—I believe it happens to others, too—but it is very embarrassing.

CLUB OPERATIONS FOR SCHOOL CHILDREN

G. M. Cooper, M.D.
Director Bureau of Medical Inspection of Schools, State Board of Health, Raleigh.

From "The sailing of Ulysses, King of Ithaca, against Troy" to "The Signing of the Armistice with the Germans" last November, there has never been any event in the world's history but that there was some urgent cause for action. To come immediately to the point, what we term "Club Operations for School Children" is simply one solution of a problem which has been with us for many years. The problem is: Make available the services of first-class throat specialists to the masses of school children who need operations.

The medical inspection of school children has been an every-day affair in Japan for more than thirty years. It has been compulsory in England for twelve years, and the results of the draft examination in the United States of America have proved that this service must be made countrywide in the United States. The medical inspection of the children *per se* is worth but very little unless followed up by specific measures taken to provide the treatment necessary for the correction of the defects found. It is simply irony to send a child's parent a note stating that his child is in need of dental treatment if the father lives twenty miles from the dentist and has no money. The same thing applies with still greater emphasis if the father is sent a note stating that his child ought to be operated on for removal of diseased tonsils, when he lives a hundred miles from a specialist and has not the price of a railroad ticket. There is no more important or legitimate field in preventive medicine than the providing of these operations, especially for children who we know will grow up and develop

tuberculosis or chronic rheumatism or some of the other numerous diseases incident to starting out with a diseased throat, especially in families with tainted ancestry. While the specialists as a rule are able and willing to sacrifice time and skill in helping to correct these defects, few of them are able to sacrifice the great amount of time necessary to operate on these children at random or irregular periods, as most of them would have to do, unless we have a definite system provided by which the greatest amount of work can be utilized in the smallest time and with the least expense and effort.

Again, 95 per cent. of the children who need this operation most will never get it unless the arrangements are made for them, the service brought near, and much urging done to get them to consent to the operation. It is different from an attack of appendicitis, in which there is severe pain and it is either do something or die, a condition which the most ignorant parent can see for himself. A child with a diseased throat gets into the condition gradually, the parent is terrified at the thought of an operation, and he keeps thinking that perhaps the child will get better as he grows older without anything radical being done; consequently no operation is ever done, and the child suffers the consequences.

So this plan of work as devised has been put into practice all right in a few counties and it is now planned to greatly extend this work as a distinct and integral part of the follow-up work of medical inspection of school children as undertaken by the North Carolina State Board of Health. We are concerned simply with the school children. No club will be open to any child under six years old and to no child unless he is a *bona fide* pupil of the public schools of the State. The work of medical inspection must first be properly done according to the required State law and the parent of the child will be required to have a certificate from the Director of the Bureau of Medical Inspection of Schools of the State Board of Health before being eligible to the club for his child. All the details in arranging for these operations are looked after entirely by a representative of the State Board of Health, relieving the specialists of any anxiety whatever about any of the preliminaries or the detail incident to the work, so that he may simply confine all his energies to the operation itself. Some of the definite regulations concerning this work may be enumerated as follows:

First: No man will be engaged for these club operations who is not eligible for membership in the American Society for Laryngology, Rhinology and Otology. In other words, no matter how capable some part-time specialists may be we cannot afford to take chances, and, therefore, none but the very best whole-time specialists will be engaged.

If you will just stop a moment and put yourself in the place of the parent of the child in a matter of such great responsibility as here attaches to the State Board of Health, you can readily see the justice of our position.

Second: The child will be operated on in what might be termed "Emergency Hospitals"; that is, the children will be grouped at the county seat town or in some town in a county where good electric current is available. Cots, with sterile sheets, etc., will be provided, and the children will not be allowed to leave this place until the day following the operation. They will be watched closely by the special nurses in the employ of the State Board of Health; so when they leave the clinic there will be absolutely no danger of secondary hemorrhage or other complication. This rule will *never* be departed from.

Third: Under the plan we propose to follow strictly, no previous opinion or positive diagnosis will be undertaken by teacher, trained nurse, county physician, family physician, or anybody else. When the child goes to the clinic, recommended for an operation, it will be with the distinct understanding that the specialist who is to do the operating is to render the final decision about whether or not the operation is essentially necessary. Absolute conservatism will be the motto in the whole procedure.

For the small percentage of children who have errors in vision which are not directly due to diseased throats and as such vanish a few months after an operation for the removal of diseased tonsils or adenoids, the only method that we can satisfactorily follow will be to employ an eye specialist for his whole time. You will readily see that this is necessary, because the club plan, owing to the tediousness of making eye tests, will not materially lower the cost to the parents. That being the case, nothing much would be done. So we would like to request that this section recommend at least three eye specialists who would like to engage in this work for their whole time, that we may select one of the three for a salaried position with the State Board of Health.

In conclusion, just a word as to the fees and methods directly relating to the work of the specialists. As this movement is positively not concerned with the ambitions of any struggling young specialists who are endeavoring to make a reputation for themselves, and is certainly not an apprenticeship school of practice affording clinical material to such men for practice, no matter how worthy they may later demonstrate themselves to be, nothing but the very best is good enough for North Carolina school children. Therefore, we earnestly hope that the very best specialists in the State will lose no time in volunteering their services when and where available. The fees will be at greatly

reduced rates, because of the wholesale nature of the work, but at the same time the work will be abundantly remunerative to the men who engage in it. But if there be any member of the Society who is fearful lest his business be interfered with, my free advice to such would be to go and join the practicing physicians who were fearful, when the State Board of Health began its war on typhoid fever in earnest four years ago, that their business would be ruined. Go, join those of the brethren out for the cash and engage in the grocery business or run a garage. We hope this Society will see fit to have a committee go into this matter thoroughly in consultation with the State Board of Health so that no mistakes may be made and that neither party to the procedure may ever see any cause for regret at the undertaking.

DISCUSSION

Dr. J. M. Parrott, Kinston: Personally, I endorse all the sentiments expressed in Dr. Cooper's paper. I am much impressed with the idea.

I notice that Dr. Cooper asked that this Section appoint a committee to confer with the State Board of Health in working out certain details. That being true, I move that the chairman appoint a committee, and that the committee be given full authority to take up this matter and act as their judgment may dictate.

Dr. Cooper: I am much obliged to Dr. Parrott for the suggestion, and for the motion, because I want it understood that I am here for consultation and advice in this matter.

COMMITTEE APPOINTED BY CHAIRMAN

Dr. M. L. Smoot, Fayetteville
Dr. C. J. Ellen, Greenville
Dr. F. A. Carpenter, Statesville

INTUBATION—A DIFFERENT WAY

Dr. O. C. Daniels, Goldsboro.

Intubation as practiced today is done in two distinct ways. The original O'Dwyer method, and by direct laryngoscopy. The O'Dwyer method is very difficult for the beginner and one who does not have much intubation to do, and even to the experienced sometimes is very difficult. This method is carried out by the sense of touch and guesswork. In direct laryngoscopy you see exactly what you are doing, but it is rather difficult, except by the most experienced, and is a method not

much in general use. The method I am going to describe is a semi-direct method, and one any physician can perform who can use a head mirror and a tongue depressor.

Instruments used, an O'Dwyer intubation set, which comprises an intubator and extubator and set of hard rubber or gold tubes, of varying size; a self-retaining mouth gag, one that opens mouth equally on both sides; a tongue depressor, one that is rigid, light, and will not slip and does not allow tongue to protrude through fenestra in blade; two artery forceps to hold mops, and one head light that is lighted from a pocket battery and one that throws converging rays of light. My preference is a Klaar light; a library or dining table that is rigid and not too high.

The method of performing semidirect intubation is as follows: The child should be wrapped in a sheet or blanket from the neck to its feet, so as to pin down the arms to the side and keep the feet closely approximated. Child should be placed on table near the left edge, with head on table and in straight line, and held by two assistants; one assistant holding head, and the other holding shoulder and body. The operator stands on right of patient with intubator, with proper size tube ready. Put mouth gag in mouth and open mouth as wide as possible, then with tongue depressor in left hand, insert same into mouth and well back on dorsum of tongue, press tongue downward and forward until epiglottis is plainly in view and on a horizontal plane; then with intubator tube in right hand under the guidance of the eye, place tube under the undersurface of epiglottis and in contact with same and on a horizontal plane; push tube into larynx. Now drop tongue depressor in left hand and with left fore finger, placed on tip of intubator tube, push same into larynx as far as rim of glottis, at same time release tube from intubator. Turn child on side to allow mucus to run out, and the job of intubating is finished. Very frequently when you first open mouth it will be so full of mucus that you cannot see epiglottis, then mucus has to be wiped out.

Extubating to me is most dfficult if I have to use an extubator, but this can be done as described by O'Dwyer, and by my semidirect method. I preferably leave stout braided silk in tube, and never had this pulled out by child. In case silk is chewed in two, I use direct laryngoscopy. As to nursing and after treatment, etc., you can find in any standard text book, as I have nothing new along that line.

DISCUSSION

Dr. J. G. Murphy, Wilmington: Since confessions are the order of the day I will make one on the subject that is before us.

I intubated for eight years and did not lose a patient I should have saved. I say did not lose a patient I should have saved because I saved all I intubated, but I did it in a very awkward way. Now for my confession: It is more difficult to extubate than to intubate, and in consultation with a pediatrician I found him able to extubate easier than I could, which of course hurt my pride, so I resolved to improve myself in this branch of my specialty, so when I was taking my next post-graduate course in New York I took out a ticket on intubation at the New York Post-graduate School, and also signed up for a course in intubation under Dr. Lynch of the visiting staff of the Willard Parker Hospital. After two weeks practice three days each week at these two institutions, I got so I could do the stunt in such a way that the patients did not frown when they saw me as the doctor who was to remove their tubes and clean them and replace them. To intubate and extubate skilfully requires practice as well as knowledge of the methods. We can get this at home by going to the dead house and practicing there.

Dr. Lynch has devised instruments, and they are on the market for direct intubation, and his method is very similar to that described by Dr. Daniels in his excellent paper, though neither Dr. Lynch nor his assistants in daily practice in the Willard Parker use the Lynch method. They practice the old O'Dwyer indirect method.

I feel gratefully indebted to Dr. Daniels for his practical suggestions and his originality, which if followed might save many lives that would otherwise be lost. His is a good paper and I commend his method.

A DOUBLE MASTOID FOLLOWING INFLUENZA

Dr. H. M. Bonner, Raleigh.

Patient, M. M., female, 14 years old, came to my office on January 11th, complaining of deafness and deafness only. History as follows:

Patient taken sick in bed on December 3, 1918, with influenza. On the third day both ears began to discharge. Patient was ill in bed until December 14th and unable to leave the house until after Christmas. Patient on examination was found to be a well developed, intelligent girl, with nothing of interest in her family history nor in her own except as above noted. On examining her ears, I find both drums a reddish pink, no cone of light, no bulging, no sagging of the walls, no discharge nor perforation. The mastoid is not tender, the skin and tissues over same are normal. No enlarged glands, except the tonsillar. The nose is normal, the throat normal, except for hypertrophied tonsils. The eustachian tubes are apparently somewhat thickened—only a limited blast of air being had on inflation—no râles. This examination

applies equally to both ears, and to my mind, the pathology evident was not commensurate with the deafness which the patient suffered. I therefore had the patient visit the office three times a week, on which occasion I inflated the ears and applied a 2 per cent solution silver nitrate to the pharyngeal orifices of the tubes. The deafness did not improve, but I kept her coming, largely for observation, feeling that sooner or later, something would "loom up" to account for the very considerable deafness which she suffered. I have no record of the tone limits nor the distance at which the acumeter was heard. I can only say that the conversational voice was not heard at all.

On March 4th, she came in, saying she did not come the week before (February 22-March 1st) because she was sick all the week—had a headache. On examination at this time, the deafness was unimproved —the drums, tubes and canals, as before noted. The right mastoid was slightly tender over the tip and emissary vein.

On the following day an X-ray plate was said by the Rœntgenologist at Rex Hospital to show evidences of pus. I advised the father that we had an operable mastoid. With the assistance of Dr. M. R. Gibson, I opened this mastoid on March 6th, with these findings:

In the tip, a large pus cell—just above this, a bony septum with perforation communicating with the pus cell above, in which the bone was broken down altogether, anteriorially pus bathing the soft tissues. Above this cell and behind it a perisinus abscess, the sinus being covered with granulations and bathed in pus for a space one-third of an inch in diameter. The antrum contained no pus and but little granulation. A smear from this mastoid showed streptococci capsulatus and a gram positive diplococci, no bacilli of whatever kind—my findings being confirmed by Miss Barrett and Miss Hall of the State Laboratory. The hearing in the right ear improved promptly after operation. The drum was shortly normal, except for the loss of the cone of light.

About March 20th I detected slight tenderness over left mastoid. The Rœntgenologist reported that the plate showed nothing abnormal. Tenderness was not marked, but did not disappear.

On March 25th, there was slight redness, with a limited amount of brawny induration over the left mastoid. Hearing in this ear was unchanged—the drum, canal and eustachian tubes likewise were unchanged. This mastoid I operated on the following day, assisted by Dr. A. C. Campbell, with these findings:

A perisinus abscess over the knee, the sinus wall being covered with granulations and bathed in pus for a space one-third by one-half inch. The pus having escaped through a small opening, the blue color of the sinus showed through the cortex. No pus was found elsewhere, the

antrum containing little granulation. The patient was up within 4 or 5 days after her operation in each case and had no elevation of temperature before or after except the day following each operation the temperature registered 99⅕. Both mastoids have healed satisfactorily. Hearing is normal in both ears. The drum in the left ear appears as normal as the right.

To me, this is a very interesting case. First, it demonstrates the fallibility of X-ray findings. Secondly, a serious condition confronts us with no complaint on the part of the patient, other than deafness. Thirdly, a capsulatus infection when we should have expected the influenza bacillus with a more rapid and pronounced symptomatology. Fourth, a perisinus abscess following a mid-ear infection of two months before, with no infection of the sinus.

DISCUSSION

Dr. O. C. Daniels, Goldsboro: I would like to report an unusual case. I am not a dentist, but week before last I took a left lateral incisor out of the right naris.

Dr. J. G. Murphy, Wilmington: Dr. Daniels' statement reminds me of a case I had a few years ago, a conductor on the Seaboard Road coming into Wilmington. He came to see me and said he wanted me to treat his nose. He was in a right bad fix, and was going to give up his position. He had been told that he had tuberculosis, and he was going to the mountains. I looked at his nose, and found at once that there was a foreign body in it. I cocainized it and pulled out the foreign body. It was a piece of bone that a dentist had chiseled from his lower jaw after extracting some teeth before putting in a bridge. The bone had fallen back into the pharynx, and he coughed it forward into the back of the nose. This was his whole trouble, and as soon as it was removed he was relieved.

In reference to Dr. Bonner's paper, the longer I practice otology, the more convinced I am that we pass over cases on which we should operate. In my twelve years experience I have operated on only one case which I regretted operating on. I feel that we pass over so many of these cases and just wait, when we ought to operate. Sooner or later those patients either come to the undertaker or come to a mastoid operation. I recall one case, a woman, whose brother said there was no necessity for the operation. She took his advice instead of mine and did not have it. A few years afterward she came to a double mastoid operation, just three weeks before she was delivered.

I believe that there are many of these cases we pass over that ought to have an operation. The more mastoid operations I do on slight symptoms, the more convinced I am that we ought to do the operation earlier and thus avoid a more serious condition later.

Dr. Bonner, closing the discussion: I thank Dr. Murphy for his remarks on mastoid work. I regretted that I did not get to see this patient at the time I could get a smear from the external canal. If I had known at that time that she had streptococcus capsulatus infection (while I do not know that I could have been more careful in watching her), the patient would not have suffered the dangers of thrombosis for the same length of time, and possibly not at all. I feel just as I said in a paper last year, that we need to be more careful about these cases that are not typical. Typical cases any one can recognize. It is the atypical cases that we need to be careful about. They come for operations later for brain abscess or for meningitis, and far too frequently they come to the undertaker.

Dr. C. W. Banner of Greensboro, was nominated for chairman of the Section on Eye, Ear, Nose, and Throat. This nomination was seconded, and Dr. Banner was unanimously elected.

Dr. Banner: Gentlemen, I want to thank you for the honor conferred on me. I am glad to see the large attendance we have here, and glad to see the interest manifested in this section. I want you to keep it up, and I hope that we can make it one of the best sections in the whole State Society.

PEDIATRICS

ACTIVE IMMUNIZATION AGAINST DIPHTHERIA

Dr. J. Buren Sidbury, Wilmington.

The fact that diphtheria makes its appearance in every city, town, village, and country every year should make us realize that it constitutes a very important hygienic problem. The Consolidated Board of Health of Wilmington, under the guidance of Dr. Chas. E. Low, has appreciated this fact and through his help and guidance the work on this paper has been made possible. The first step in this work was made when Dr. Low and myself presented the idea of active immunization against diphtheria to Prof. J. J. Blair, superintendent of the city schools of Wilmington. Upon his invitation, Dr. Low and I presented the subject to all the city school teachers and asked that they take the tests themselves as their first step to coöperate with us in this work. This they did with the desired effect upon the pupils. Before testing any of the children the board of health issued a circular for each child to take home to his parents to sign, both as to their willingness to have their child take the Schick test and also the treatment if necessary. Some signed one; some signed both; others signed none. However, in spite of two epidemics of influenza, we tested about 1,100 children and have given about 200 children treatments with toxin-antitoxin in the past six months and have rendered thirty individuals immune who were susceptible six months ago. This step, Dr. Low, superintendent of the Wilmington Board of Health, considers the beginning of the end of diphtheria in Wilmington, for it is now well established as one of the measures of preventive medicine urged by our board of health. Our people are already as familiar with this as they are with typhoid vaccine, and are asking that it be done to protect their children from the dreaded disease, diphtheria.

This generation of the laity and of the medical profession is not familiar with the dreadfulness of diphtheria as it existed thirty-five and forty years ago. To have two or three dead in one house at one time from membranous croup, so called, was not an unusual occurrence. Since that time wonderful strides have been made through the powerful specific agency of diphtheria antitoxin. Coupled with that, and by no means less important, was the wonderful work done by Dr. O'Dwyer with his intubation set which he gave his life to perfect—and which, up to the present day, has not been improved upon.

In spite of these two remedial agencies the morbidity and mortality from diphtheria have remained about the same for the past fifteen or

twenty years. And it seems very evident that if we expect to reduce materially our death rate from diphtheria we must seek other means than have been at our disposal or than have been generally used. There are reported yearly in the United States an average of 23,540 deaths from diphtheria and the morbidity from this is ten times this number or 235,400.

It is important for us to consider here the age incidence of diphtheria, which is the greatest between one and five years, according to cases reported, which is borne out by the results of the Schick test.

MORTALITY STATISTICS

[1]TABLE I. MORTALITY FROM DIPHTHERIA IN NEW YORK CITY FROM 1891–1900

	Number	*Per cent.*
Birth to 5 years	14,553	81.5
5 to 10 years	3,052	17.0

[1]TABLE II. MORBIDITY AND MORTALITY FROM DIPHTHERIA IN NEW YORK CITY DURING THE PAST FIVE YEARS

Year	*Morbidity*	*Mortality*
1913	14,535	1,333
1914	17,129	1,491
1915	15,259	1,278
1916	13,521	1,031
1917	12,624	1,158
Total for five years	73,068	6,291
Yearly average	14,613	1,258

[1]TABLE III. MORTALITY CENSUS FROM REGISTRATION AREA IN THE U. S. FOR 1910

	Deaths	*Deaths per 100,000 Population*
Diphtheria	11,512	21.4
Measles	6,598	12.3
Scarlet fever	6,255	11.6

From the above table we see how the total deaths from diphtheria compare with the combined death rate from measles and scarlet fever. While the general population fears scarlet fever more than either of the other two, the death rate from it is the least of the three.

As we have seen from the above statistics, which are taken from A. Zingher's report, the morbidity and mortality from diphtheria for the past twenty years has remained constantly high and has done so in spite of antitoxin therapeutically and prophylactically. This brings us face to face with the fact that if we wish to cope efficiently with diphtheria we must seek other means than antitoxin alone. Thanks to

Schick, Von Behring, and Park there has been developed an efficient weapon against diphtheria which is simple enough for general use and which seems to be equally as reliable as any other known medical remedy. This is the Schick test combined with the administration of toxin-antitoxin to the nonimmunes. If this would be generally and intelligently used over 98 per cent. of diphtheria would be eliminated from this country. In other words, diphtheria would be wiped out.

THE SCHICK TEST

The flexor surface of the forearm is sponged off well with 95 per cent. alcohol or ether and with a tuberculin syringe and a fine needle .2 c.c. of diluted toxin, $\frac{1}{50}$ M.L.D. for 250 gm. guinea pig in sterile normal saline is injected intracutaneously. If the injection is made properly a white wheel-like elevation appears which presents a number of fine pits corresponding to hair follicles or sweat glands. This occurs only when the test is properly done and denotes that the solution is confined to a limited area of the epidermis where it causes local irritant action. [2]"A positive reaction represents the action of the toxin on the unprotected cell" and according to Schick indicates that there is less than $\frac{1}{30}$ unit of antitoxin in 1 c.c. of blood. [3]"The researches of Loos, Keresawa, Schick, and others have proved that there are no protective bodies (antibodies) against diphtheria in the blood serum of children taken sick with diphtheria; that those persons taken sick prior to injection with antitoxin always give a positive skin reaction, while the negative intracutaneous skin reaction always proves the existence of protective bodies in sufficient numbers for prophylaxis against diphtheria," according to Bunderson.

A positive reaction begins as a redness at the point of injection which may appear in a few hours and increase in intensity for three or four days when it reaches its height and begins to fade, leaving a definitely circumscribed scaling area with brownish pigmentation which may persist for six weeks. [4]"At its height the reaction consists of a circumscribed area of redness and slight infiltration which measures from 1–2.5 cm. in diameter." Park and Zingher.

The negative shows no local reaction—skin normal. These tests are read at the end of the third or fourth day when they are at their height, very exceptionally a late reaction is seen to develop after the fourth day. [5]The reliability of the Schick test is best illustrated in the fact that of 1,000 patients sick with scarlet fever at the Willard Parker Hospital, who had shown a negative Schick on admission, not one developed clinical diphtheria, although no antitoxin had been given, and about 15–20 per cent. of these children showed virulent diphtheria bacilli in

FIG. I. Schick 7 days, showing scaling and exfoliation of epidermis. Age, 8 years.

FIG. II. Schick 10 days old, showing desquamation. Age, 8 years.

throat cultures at some time during their stay in the hospital. Since its use in the Hebrew Infants' Asylum, New York City, Dr. Alpes Hess says there has not developed a single case of diphtheria in the hospital for three years.

The Schick test has made it possible to distinguish definitely between "clinical diphtheria" and carriers. It has offered an explanation of why some cases of so-called diphtheria do so well without diphtheria antitoxin while other cases, apparently identical, do so badly after having antitoxin. This kind of case has occurred so frequently that there has been a tendency for the general practitioner to disregard the laboratory report entirely and give antitoxin to all suspicious cases and make no effort to make an accurate diagnosis. If the Schick test is used in these, as well as in other cases, a great saving will be made in that antitoxin will not be given unnecessarily, and carriers can be identified by a positive throat culture and a negative Schick. Carriers give a negative or a very faintly positive reaction.

The effectiveness of the administration of toxin-antitoxin we control by doing a Schick test on those so treated at definite stated intervals and most gratifying results are obtained. It has been conclusively shown that antitoxin begins to develop in two to three weeks after injections and that the per cent. of negative Schicks increase very rapidly after the third week. In our series of cases treated with toxin-antitoxin thirty-two children were retested at the end of two and a half months. Of this number twenty-nine gave a negative reaction; three a positive.

[1]Zingher has shown that antitoxin derived from the mother lasts the child from six to nine months. Very occasionally does this last for eighteen months. At the end of this time the child loses the immunity derived from the mother and becomes nonimmune and gives a positive Schick test where it had been negative before. He also showed that a large majority of the children belonging to immune mothers have positive Schick tests. After six months of life, twenty-seven out of thirty-two children between six and fifteen months, or 86.3 per cent., gave a positive Schick reaction.

When a mother shows a positive Schick test her infant under six months will invariably give a positive reaction. In no case has it been true that a mother with a positive Schick had an infant under six months with a negative Schick. But it is not true that every infant under six months whose mother is immune gives a negative Schick. And it may be further stated and very definitely so that practically all infants if they are not susceptible at birth will become so during the first year of life. This is borne out by the Schick test which shows the greatest number of positives between one and five years. [6]Zingher

shows that 68.5 per cent. between birth and six months were negative and that 84.3 per cent. between six and fifteen months from immune mothers tested at the New York Foundling Hospital were positive.

It is interesting to note that families run more or less alike in their susceptibility or nonsusceptibility. If the youngest child in the family shows a negative Schick all the other children will show a negative reaction. If there is any variation the younger children show a positive and the older children a negative reaction. If the older child is positive the younger children will invariably be positive.

Pseudo reaction: The pseudo test consists of the injection of .2 c.c. of the same solution of diphtheria toxin in saline which has been previously heated to 75° C. for five minutes. In this the soluble diphtheria toxin has been destroyed and the bacillus protein has remained unchanged. After six to eighteen hours a more or less urticarial reaction occurs, reaching its height in thirty-six to forty-eight hours, and subsides in three or four days, when the true reaction is at its height. The pseudo reaction appears earlier, is more infiltrated, less sharply circumscribed, disappears in twenty-four to thirty-six hours, leaving only a pigmented area, and never shows any scaling. It is quite possible to distinguish the two, and this should be done, for a person with a positive pseudo reaction may have a high antitoxin content in his blood. All doubtful reactions should be controlled by a pseudo test.

The reaction depends upon a hypersusceptibility of the tissue cells of the individual to the bacillus protein which is present in the toxin broth used. It is a local anaphylactic response. A moderate pseudo reaction at the end of twenty-four hours is very much like the fully developed positive reaction, but the marked pseudo reaction shows considerable infiltration, with a central darker reddish area with less pronounced periphery. One can best appreciate this difference after seeing a number of pseudo reactions.

There are two methods to exclude confusion in readings:

(1) Read test at end of three or four days;

(2) Use a control test on opposite arm at same time.

RESULTS OF SCHICK TESTS AS SHOWN BY DIFFERENT WORKERS

[7]Schick's own percentages:

Years	*Percentage Positive*
New born	7
1 year	43
2 to 5 years	63
5 to 15 years	50
Adults	10

Fig. III. Positive Schick test, showing pigmentation. 10 days. Boy, 8 years.

Fig. IV. Schick test 10 days (x x x) positive. Desquamation has occurred and pigmentation very plain. Adult female.

[1]Schick Test—Zingher:

Age	Total	Negative	Positive	Percentage Positive
6 months to 1 year	10	5	5	50.0
1 to 2 years	68	22	46	67.6
2 to 4 years	273	93	180	65.9
4 to 6 years	249	116	133	53.4
6 to 8 years	196	123	73	37.2
8 to 15 years	237	171	66	27.8
Over 15 years	167	126	41	24.5
Total	1,200	656	544	45.3

[1]The Schick Test at the New York Catholic Protectory:

Age	Total	Negative	Positive	Percentage Positive
4 to 6 years	126	113	13	10.3
6 to 8 years	212	202	10	4.7
8 to 10 years	91	82	9	9.9
10 to 15 years	233	220	13	5.5
Over 15 years	25	24	1	4.0
Total	687	641	46	6.7

The Schick Test in Wilmington, N. C.:

		Positive		Negative		Percentage Positive		
Age	Total	M.	F.	M.	F.	M.	F.	Percentage Positive
0–6 months	4	..	1	..	3	....	25.0	25.0
6 months–1 year	15	4	6	3	2	26.7	40.0	66.7
1–2 years	24	11	9	2	2	45.5	37.5	83.3
2–4 years	30	14	10	3	3	46.7	33.3	80.0
4–6 years	23	7	7	5	4	30.4	30.4	60.8
6–8 years	218	50	67	49	52	23.1	30.5	53.6
8–10 years	181	32	51	53	45	18.8	27.0	45.8
10–12 years	218	40	55	76	47	18.3	25.2	43.5
12–16 years	192	39	49	51	52	20.3	25.5	45.8
Adults	95	..	27	7	61	....	28.4	28.4
Total	1,000	197	282	249	270	12.0	28.2	40.2

Percentage William Hooper School*

Years	Percentage Positive
6–8 years	27.9
8–10 years	30.9
10–12 years	26.3
12–16 years	28.5

*This School is mentioned separately because it gave the lowest per cent positive of any of the schools tested.

TREATMENT

The treatment consists in the injection of one c.c. of toxin-antitoxin at seven day intervals for three injections. The dose is the same for all except infants under one year, who should get three injections of 0.5 c.c. toxin-antitoxin at seven day intervals for three injections.

Reaction: The reaction is very slight if any. A few cases have malaise, temperature 100-102 for twenty-four hours. The local reaction may show redness and swelling of the arm for twenty-four to forty-eight hours with some pain and tenderness. On the whole the majority of the cases have not been inconvenienced by the treatment at all and it has been my experience that the younger the child the less the reaction. Adults are more apt to have some constitutional reaction. Two cases had chills followed by fever and malaise thirty-six hours after the injection lasting 24 hours. The reaction from this is much less than that from typhoid vaccination.

During the past six months we have treated two hundred cases. Of this number thirty-two have been retested after two and one-half months and twenty-nine showed a negative Schick. At the beginning of the school year next fall all that have received toxin-antitoxin will be retested and those who show positive tests will be advised to take one or two more injections to stimulate their immunity. We feel that this number will be very small, however, and a report on these will be given at a later date.

TIME OF DEVELOPMENT OF ANTITOXIN

Immunity obtained by having diphtheria or by the use of immunizing doses of antitoxin lasts from one month to several years, varying greatly in individuals, but is of very much shorter duration in children than in adults, according to the best authorities.

To meet this condition it becomes necessary to immunize both actively and passively if we expect to get any lasting immunity and by combining the two; that is, when the patient has been exposed to diphtheria recently, we give antitoxin plus toxin-antitoxin to immunize both for the present and for the future.

[8]The first attempt to immunize children was made by von Behring in 1912. According to Park and Zingher "of one hundred and fifty-eight cases infected 35.5 per cent produced enough antitoxin within four weeks to give a negative reaction, and 6 per cent a very faint reaction. Of the remaining 52 per cent giving a moderately positive, 6.5 per cent a strongly positive Schick reaction."

[4]By injection of antitoxin Park showed that to obtain the same effect as the Schick ten to twenty times as much antitoxin was needed subcutaneously or intravenously. To prevent a positive Schick from developing he showed that 20,000 units given subcutaneously were able to affect the six-hour reactions to the same extent as 1,000 units intravenously. This emphasizes the importance of intravenous administration of antitoxin in toxic diphtheria.

CONCLUSIONS

1. The Schick test is a reliable test for determining immunity against diphtheria.
2. The Schick test will differentiate between a true case of diphtheria and a "carrier."
3. The Schick test is an accurate clinical check on efficiency of administration of toxin-antitoxin.
4. It has been shown that toxic diphtheria cases require early intravenous administration of antitoxin.
5. Should an outbreak of diphtheria occur among children previously tested, it would be necessary to immunize with antitoxin only the susceptible children. This applies to individual families as well as to schools. Where such occurred in schools classwork could continue without interruption. Those who show a negative Schick need no immunizing dose, for they will not develop diphtheria if exposed.
6. The age incidence of diphtheria as shown by the Schick test is between one and five years, which is the age of greatest mortality, having between 75 per cent and 89 per cent of the total mortality from diphtheria.
8. A universal application of the Schick test to all children up to fifteen years and the administration of toxin-antitoxin to the non-immunes over two years and to all children under two years, regardless, would practically eliminate diphtheria from our midst.

[I wish to express my appreciation to Miss Columbia Munds, Miss Kutchen and Mrs. Pfeiffer, nurses who assisted in doing the work, and to Prof. Bryan, Misses Hill, Meares, Fickling, Clark, and Cook, principals of the different schools, for their coöperation in carrying on this work in the schools.]

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DISCUSSION

Dr. E. J. Wood, Wilmington: Certainly from a public health point of view there has hardly been presented here a paper as important or so far-reaching in its work as this paper. A good part of this work I have known from a distance, and I do not think there has been any piece of original investigation as important as this, and I am satisfied that the whole state will benefit from it.

Dr. Sidbury, closing the discussion: The reagents used in doing this work were those from the New York City Board of Health—both for the Schick test and the toxin-antitoxin. Parke, Davis & Company also furnishes both products. The value of this prophylactic remedy cannot be overestimated. If this means of prevention of diphtheria were universally used, which it will be in a very short while, diphtheria would be a thing of the past. The sooner we make it universally used the sooner thousands of lives will be saved each year from diphtheria, for this is a preventable disease. It rests with the general practitioner, though, as to how soon this remedy will become universal. Dr. Park advises active immunization of all infants under two years and those over two years who show a positive Schick.

PATHOLOGY, PHYSIOLOGY, BACTERIOLOGY AND CHEMISTRY

THE PHYSIOLOGY AND ORGANOTHERAPY OF THE CORPUS LUTEUM

Dr. S. A. Stevens, Monroe.

There are in the human body a number of glands called ductless. The part played by these in the human economy was for a long time a matter of conjecture. While their exact function is still not thoroughly understood, yet recent investigations by physiologists have thrown some light on the subject. To this comparatively new branch of medicine the term endocrimology has been applied. That certain diseased processes are dependent upon pathological conditions in these glands—resulting in over or under functioning—is now an established fact. As an example of this may be mentioned cretinism, due to hypofunctioning of the thyroid gland, and exophthalmic goitre, due to overfunctioning or diseased conditions of the same gland. The use of extracts of some of these glands in diseased conditions, supposed to be due to disturbance of their normal action, has been tried for several years. To this branch of therapeutics the term organotherapy has been applied.

It is the purpose of this paper to consider the physiological and therapeutic status of one of these glands—the ovary, or its active principle, the corpus luteum. This gland is supposed to have both an external and internal secretion. That it exerts an influence upon menstruation and reproduction has been known for a long time. However, its mode of action and its probable connection with certain other ductless glands have been brought to light by recent investigations. It is now definitely known that the cause of menstruation is an internal secretion of the ovary and that the element of the ovary which is concerned in this process is the corpus luteum. Its use was resorted to on the theory that it exerted a trophic action on the uterus during the entire sexual life. Recent investigations show that the corpus luteum produces an internal secretion which leads to a hypertrophy and softening of the uterine mucosa and sensitizes it so that it reacts to a foreign body (the ovum), with the formation of a maternal placenta. It is possible, and perhaps probable, that the secretions of the ovary may be affected by the entire endocrine system. There is evidence that a well marked disturbance of menstrual function is associated with diseased conditions of other ductless glands, especially of the hypophysis or pituitary body.

It has been shown that hypertrophy of the hypophysis, which occurs in animals after removal of the ovaries, may be checked by administration of ovary.

Because of the effect on the uterine mucosa the use of ovarian extract has been resorted to in a number of menstrual disorders of functional type. In this type there is an absence of any anatomical lesions of the uterus or adnexa that will explain the symptoms.

In cases of the so-called functional amenorrhœa organotherapy has given relief. While the number of cases benefited is not as large as it ought to be on theoretical grounds, still it is sufficiently large to justify us in hoping for better results with increasing knowledge of the entire endocrine system. In studying the effect of organotherapy on menstruation, we are denied the more exact methods of laboratory tests and animal experimentation, since this process is almost exclusively a human attribute. Hence we are forced to rely on the clinical test, or by observing the effect of organotherapy upon functional pelvic disturbances. This method is somewhat inaccurate, but not necessarily more so than the results of laboratory tests and animal experimentation, for the reason that substances may be, and frequently are, changed chemically by the processes of digestion and absorption in the human body.

In dysmenorrhœa, in irregular or delayed menstruation, organotherapy has accomplished relief, and in some cases entire cure. This form of trouble is not infrequently encountered in young married women. These suffer much pain at the menstrual period; oftentimes there is irregularity, the flow is scanty or maybe profuse. In some selected cases of this kind much relief may be had from a judicious, persistent use of ovarian extract.

In amenorrhœa, associated with rapid and excessive deposits of fat —the so-called adiposa genital dystrophy—it has been found that the amenorrhœa is probably dependent upon underfunctioning of the pituitary body or hypopituitarism. The disturbance of the normal balance between these two ductless glands results in a failure of the uterine mucosa to perform its function. This symptom-complex has been relieved or cured in an encouraging number of cases.

In some cases of sterility, especially when associated with hypoplasia of the uterus, or the infantile type, the application of organotherapy has resulted beneficially. While the proportion of cases of this type that are benefited is discouragingly small, still the same may be said of other methods of treatment. Its use in this condition is based on the theory that the failure to conceive is due, not to the small size of the uterus, but to some physiological defect in the endometrium. Color is

given to this theory by the well known power of the uterine muscle to undergo hyperplasia when the proper stimulus is applied, as in pregnancy.

Corpus luteum has been used with apparent success in the treatment of excessive or pernicious vomiting of pregnancy.

Finally, a consideration of the use of corpus luteum or ovarian extract in the nervous and vasomotor disturbances accompanying the menopause —both natural and artificial—reveals its most beneficial results.

The testimony of a number of authors proves pretty conclusively that this is its largest field of usefulness at present. The hot flushes, the tremors, giddiness and other nervous discomforts that follow destructive operation on the uterus and adnexa are claimed to be amenable to organotherapy. When we consider how frequently these operations are performed by gynecologists and the large number of sufferers from these ablation symptoms, it is certainly fortunate that some means of alleviation has been discovered.

In the natural menopause, the nervous manifestations are often distressing and prolonged. In some cases of this type much relief has been obtained by the use of ovarian therapy.

In conclusion, the certain and well established therapeutic results obtained by the use of thyroid extracts, and especially the well known effect of pituitrin on inertia uteri, lead us to hope that, with increasing knowledge of the entire endocrine system, much benefit may result from further investigation along this line.

THE TREATMENT OF SYPHILIS WITH MERCURY: ITS MODE OF ABSORPTION AND EXCRETION

Joseph A. Elliott, A.B., M.D., Charlotte.

The treatment of syphilis has undergone so many changes since the advent of salvarsan that there is still a great diversity of opinion as to what constitutes adequate treatment. In general we may divide the therapeutists into three classes; first, those who treat syphilis with salvarsan alone; second, those who administer mercury alone; and third, those who combine both salvarsan and mercury in the treatment of the disease. To this latter class belong our most eminent syphilographers and the greater majority of the medical profession. While we believe salvarsan the most efficient drug in the treatment of syphilis that we have in our armamentarium, still there is a great deal of truth in the old maxim: mercury is the silver lining of every luetic cloud.

It is not the object of this paper to go into details as to the treatment of syphilis, however. Suffice it to say that every case of syphilis should

receive from six to twenty or thirty salvarsans, depending on the case, and courses of mercury along with these treatments or during the intervals between the series of salvarsans.

There are three principal methods of administering mercury, namely, by ingestion, by injections, and by inunctions. While mercury may be given by mouth to advantage in some cases, in general this method should be condemned, as being the least efficacious, and liable to mask symptoms that should be treated more strenuously in order to avoid later complications. The ease with which pills may be taken and the lack of inconveniences experienced from the other forms of treatment are great temptations in favor of their use. Of the two latter methods, both are considered efficacious; however, both have certain disadvantages. The injections are more or less painful and require a visit to the physician's office at least every other day when the soluble salts are given, and weekly in case of the insoluble salts. The inunctions, such as are ordinarily used in the inunction cure, are dirty (soil the bed and body linen, thus disclosing the nature of the treatment), and besides require thirty minutes rubbing each night. Disregarding these inconveniences, clinical experience has definitely shown that the results not only warrant but demand strenuous treatment if a cure is to be effected.

CHOICE OF DRUG

Injections: The soluble salts that are most commonly used are the bichloride, benzoate, succinimide, oxycyanate, cyanide, and cacodylate. These preparations are usually given intramuscularly, daily or triweekly. The advantages are quick absorption, and perhaps a little less discomfort than is experienced with the insoluble salts. It is apparent, however, that the frequency of administration is quite a factor in many cases, inasmuch as it entails considerable expense as well as loss of time.

The insoluble salts that are ordinarily used are the salicylate, calomel, and gray oil. The salicylate has gained great precedence in this country over the other preparations as being less toxic, less painful on injection, and as fully, if not more, efficacious. The clinical results have been substantiated by very extensive animal experiments by Schamberg and his coworkers.

Inunctions: In the inunction treatment of syphilis, the blue ointment or unguentum hydrargyri has been used almost exclusively until recently. The therapeutic results obtained, where the treatment has been carried out properly, have been excellent. In an attempt to get a cleaner preparation, calomel ointment was substituted in the University of Michigan clinic three years ago, and while it is even yet too

early to draw definite conclusions as to the comparative efficiency of the two drugs, the therapeutic results warranted a continuance of the calomel. Since that time other clinicians have reported most favorable results from its use and calomel bids fair to replace the blue ointment as a cleaner and more desirable preparation.

ABSORPTION OF MERCURY

The question as to how mercury is absorbed when applied to the skin in the form of inunctions is one which has been discussed for many years. There are those who believe that mercury is rubbed into and through the skin; while others teach that its therapeutic value lies chiefly, if not solely, in its volatilization and inhalation through the respiratory system. A third conception accepts both absorption and inhalation as occurring. In an attempt to satisfy ourselves as to the mode of absorption Professor Wile and myself performed a number of experiments, which we believe definitely prove that the drug is both absorbed and inhaled.

Our first experiments consisted in determining the volatility of the various salts of mercury by placing small pieces of gold leaf suspended above the preparations in an incubator at body temperature. It was found that the gold leaf suspended above the unguentum hydrargyri became amalgamated very readily. In case of the other volatile salts it was necessary to first collect the mercury on copper and by heating the copper in a capillary tube the mercury was driven onto the gold leaf. After these experiments we found that mercury salicylate, the oxids, and the oleate were not volatile at body temperature, whereas the unguentum hydrargyri, calomel, and the ammoniated mercury were readily volatile. We used as an index to absorption the presence of mercury in the urine, therefore it became necessary to find a test by which minute quantities could be detected. After considerable experimentation with the Reinsch test, that of Vogel and Lee and others, we discovered a test by which one millionth of a grain of mercury in solution could be detected. In brief, the test is as follows: The solution to be tested is acidulated with hydrochloric acid, to this is added copper dust which takes up the mercury to its last trace. The copper dust is then filtered out of the solution, dried and heated in the distal end of a bulb tube. The mercury is driven off and deposited as an amalgam on a small bit of dental gold leaf placed in the tube. In specimens where there is a large amount of protein material such as the blood, it was found necessary to first destroy the solid matter by adding sulphuric acid, distill by heat and then test both the residue and distillate. With this test well in hand we began testing the urine of patients

receiving mercurial inunctions in the form of blue ointment. In a series of controlled experiments we found mercury could be detected in the urine from twelve to twenty-four hours after the inunction was applied. We next used the nonvolatile salts, the oleate, red mercuric oxid, yellow mercuric oxid, and mercuric salicylate. These preparations were made in the same strength and the same vehicle which is used in the preparation of the unguentum hydrargyri. With the salicylate, mercury was found in the urine seventy-two hours following the inunction; mercuric oxid forty-eight hours; and the oleate seventy-two hours afterward. Since these salts had been shown to be nonvolatile at body temperature, we concluded that mercury was absorbed through the skin.

Our next experiment consisted in placing near a bed patient a warm chamber in which mercurial ointment was kept at a temperature of 35° C. The urine was examined at frequent intervals, the mercury appearing within twenty-four hours. A second experiment consisted in examining the urine of a nurse who had been giving inunctions in a large and well ventilated room over a period of several weeks. Although she had always used a gloved hand in giving the treatments, mercury was easily detected. Thus we concluded that the volatile salts are absorbed in appreciable quantities through the lungs.

EXCRETION OF MERCURY

After determining the mode of absorption of mercury we next investigated its excretion. Having shown its presence in the urine we next tested the various body fluids, such as the stomach contents, the saliva, the milk, the blood, and the spinal fluid. Owing to the large protein content of the blood it was found necessary to modify the test as previously stated, and even then a considerable number of inunctions were given before the presence of mercury was detected. In cases where injections of mercury salicylate, mercury succinimide, and the bichloride of mercury were given its presence was easily detected.

EXPERIMENTS ON MILK

The milk from a number of nursing women was tested following their inunction with both blue ointment and calomel. In all cases mercury was detected as soon as tested for, that is about one week after the inunctions were started. In order to eliminate the possibility that the milk had been contaminated by the skin, we placed a number of nursing women on the injection treatment and found mercury forty-eight hours after injections of bichloride.

EXPERIMENTS ON SALIVA AND STOMACH CONTENTS

We investigated the saliva and stomach contents from patients receiving both inunctions and injections of mercury and found an appreciable quantity in all tests. As was true in the other secretions, bichloride made its appearance first.

SPINAL FLUID

From the experiments on the spinal fluid we gathered most interesting data. We examined the fluid from a large number of patients, some of whom were receiving inunctions with either calomel or blue ointment, while others were receiving injections of both the soluble and insoluble salts. In no case were we able to detect the faintest trace of mercury. Believing that perhaps the quantity of spinal fluid tested was too small we collected fluid from a number of cases that had been taking mercury over a long period of time. This experiment likewise proved negative. We were able, furthermore, to test the spinal fluid of a patient who died following the ingestion of bichloride. The spinal fluid in this case also failed to reveal the presence of mercury.

CONCLUSIONS

1. Although salvarsan is essential in the treatment of syphilis, it should be supplemented by mercury either in the form of injections or inunctions.
2. Experimental data at hand leads one to conclude that mercury is absorbed both through the skin and the respiratory system.
3. While the greater part of mercury is excreted through the kidneys a certain portion is excreted through the other body fluids.
4. If mercury reached the spinal fluid at all it is in negligible quantities.

DISCUSSION

Dr. A. J. Crowell, Charlotte: There is one idea in this paper that is to me interesting. In this experimental work Dr. Elliott found no mercury in the spinal fluid. This bears out the idea of Prof. Ehrlich, that the most volatile remedies do not permeate the membrances that retain the spinal fluid. Even iodide of potassium is not found in the spinal fluid when given for a long time. This makes it very important that this, as one of the dead spaces in the body, be treated directly. We know that the spirochætes get into the spinal fluid and that is why Swift and Davis took up the plan of using salvarsanized serum injections into the spinal fluid. This is a direct attack upon the spirochætes in this space which cannot be reached through the circulation with drugs.

I am associated with Dr. Elliott but did not know until I heard this paper that he was bringing out the fact that this membrane was very impervious and that mercury was not found in the spinal fluid, even though it had been given over a long period of time. I think it illustrates very forcibly that if we are to cure syphilis we must in many cases treat the spinal fluid. In fact it looks to me as though we shall have to treat, in many cases, the spinal fluid as well as through the blood.

Dr. Elliott, closing the discussion: I would like to say that, in conjunction with the spinal fluid in early syphilis, if one does a lumbar puncture as a routine he will find that a large number of fluids will show cytological and serological changes. I have seen a number of patients with a primary sore, without any visible evidence of secondaries, whose spinal fluid showed marked changes. I think it is generally conceded that involvement of the nervous system when it occurs takes place during the early weeks of the infection. We have experimented with salvarsan and have been unable at any time to detect arsenic in the spinal fluid. Several men have reported its presence, but we believe that due to imperfect technique. In a long series of experiments a few years ago Professor Vaughan examined the spinal fluid from patients receiving salvarsan and at first he found a trace of arsenic, but later found that it was in the chemicals used rather than in the fluid. We have had a number of patients who failed to respond to intravenous medication, but would respond very readily when a minute quantity of salvarsan was given into the spinal canal. Where there is involvement of the central nervous system we feel that intraspinal treatments are indicated and the earlier the treatment is instituted the better the prognosis. The symptoms may disappear, whether or not any treatment is given, but perhaps ten or fifteen years later your patients will be either paretics or tabetics.

OBSTETRICS

TREATMENT FOR SOME OF THE EMERGENCIES IN OBSTETRICS

Asphyxiated Infant—Post Partum Hemorrhage—Placenta Previa and Eclampsia

Dr. J. R. Alexander, Charlotte.

In this article it is the purpose to give only the emergency treatment for the above emergencies, and that not in detail, as the article would be too voluminous.

The writer has always held that the ordinary, common, everyday general practitioner, in which class he is proud to place himself, and also the trained nurse, should know more about obstetrics than any other branch of medicine. In other emergencies the physician has time to get assistance to share his responsibilities, and even to read up on the case, but not so in the emergencies of obstetrics, for when you meet them, and meet them you will if you have any obstetrical practice, it will be right up to you, not some one else, to handle the case skillfully or unskillfully, and to handle them skillfully you must know what you are going to do before you have the emergency, not learn it after you are in the case, as you must act quickly—there is no time to consult a textbook and often you cannot get a consultant before it is too late. By making thorough examinations before labor, and after it has started, you may be able to detect what will be an emergency, and prevent an emergency.

ASPHYXIATED INFANT

As treatment of asphyxiated infant deals only with the infant, it is probably not considered as serious as the others, but it is very important to know exactly what to do to resuscitate an asphyxiated infant. Three principles should govern the treatment. First—clear air passage from obstructions; second—maintain body heat; third—supply oxygen to the blood. The mouth and nostrils should be cleansed of mucus, etc., as soon as the infant's head is delivered; as soon as the body is delivered the infant should be raised by the ankles. This allows the fluid in the upper air passage a chance to run out before the child gets a chance to draw it into the lungs with the first gasp for air, and it is dangerous to perform artificial respiration when the trachea bronchi and sometimes the aveoli are full of amniotic fluid, meconium, blood or vaginal secretions. This must be remedied before an attempt is made to bring air into the lungs. The importance of keeping the baby warm is not generally appreciated. The baby should be received in warm towels

and kept wrapped up as much as possible during subsequent manipulations. I do not take much stock in the common practice of putting the baby first in a cold basin of water and then a hot one. The one is too much of a shock—the other too exhausting. Sprinkling with cold water or a slap is preferable, and you will likely get as good results without the dangers of the former method. If the fluid has not all run out of the upper air passage, the use of the tracheal catheter can now be put to good advantage for getting out the fluid by passing it into the trachea and sucking the fluid out and afterwards by inflating the lungs with it. The most important way to get oxygen into the blood is by artificial respiration by one of the various plans that have been suggested; probably the most powerful, and under some circumstances the most dangerous method, is that of Schultze swingings. "The child is grasped with thumbs over the front of the chest, index fingers on each axilla to prevent it from flying out of the operator's grasp, the three fingers of each hand distributed over the back; the head is held steady by a pressure with the wrists; the accoucheur stands planting the feet wide apart; the child is slowly swung up over the head, so that the feet fall downward and thus held for a few seconds. This is expiration, and often foreign bodies are emptied from the air passages. An assistant removes this with the little finger wrapped in gauze. Now the child is swung out farther and down between the legs, letting the motion begin and end very even and gently. An audible inspiration should accompany this movement."

It is well to alternate between the artificial respiration and in inflating the lungs either by mouth to mouth or trachael catheter. The baby should be given some time for rest, and should be warmly wrapped. One thing that I have gotten splendid results from is by putting spirits of camphor in the heart of the hand and applying to the fontanels; it acts both as a counterirritant and as a quick stimulant. If the baby begins to breathe very weakly, and appears exhausted, give it a few drops of brandy or aromatic spirits of ammonia.

POSTPARTUM HEMORRHAGE

By far the most important treatment for postpartum hemorrhage is "prevention," but that phase of the treatment will not be taken up in this article, as it is not an emergency. However carefully we may practice "prevention," we will have some cases of postpartum hemorrhage. When we do have a case, the first thing to do is to find out the site of the hemorrhage. Is it a placental site or is it from lacerations? If it is the latter, contraction of the uterus will not control it, if it is not

in the uterus. If the hemorrhage keeps up after the uterus contracts, hunt for the lacerations and suture them up. The first treatment for postpartum hemorrhage is to grasp the uterus through the abdominal walls and massage it vigorously; at the same time have the nurse give the patient a hypodermic of some sterile form of ergot, or if this cannot be had, give one dram of ergotole by mouth. As a rule, as soon as the uterus contracts, the hemorrhage ceases. Should the bleeding continue, it is necessary to remove the placenta, if it has not already been delivered, whether or not a tear is found. After having massaged the womb vigorously, in the moment of contraction, perform Credé's expression. If this does not deliver the placenta, after thorough trial, it should be done manually. The patient is put across the bed, the buttocks well over the edge, the legs are held in a lithotomy position; the accoucheur sees that his instruments, basins with antiseptic solutions, gauze for packing the uterus, and the intrauterine douche are all prepared and within easy reach. As this is a dangerous operation, on account of infection, the accoucheur should be absolutely sterile, with sterile gown and gloves; the external genitalia should be scrubbed and disinfected, and it would be well for him to use a piece of sterile gauze on his gloved hand for cleansing out the uterus. In cases where the placenta has been delivered and hemorrhage caused by the uterus not contracting, on account of either pieces of the placenta or blood clot in the uterus, the uterus should be emptied of these particles and douched out with a hot, sterile douche. I prefer to use the rubber tube instead of the nozzle. If the douche does not stop the hemorrhage, after the uterus has been thoroughly cleansed, it would be well to use small pieces of ice, that have been in sterile water, placing these in the uterus by the hand, and then packing the uterus with sterile gauze, beginning, of course, at the fundus and packing well. Stimulate the patient as may be needed in any case of shock, using normal salt solution, either by hypodermoclysis or directly into the vein; camphorated oil, adrenalin, digifolin, etc. Do not give morphia or anæsthetic; elevate the foot of the bed—some advantage may be derived from strapping the lower extremities.

PLACENTA PRÆVIA

The treatment will depend largely upon the location of the placenta, whether it is centralis, that is, the placenta attached as over os uteri; or whether the placenta is partially covering the os uteri, commonly called marginalis; or to the side of the uterus, which we call lateralis; also as to whether labor has already advanced, and the amount of hemorrhage the patient is having. If the hemorrhage is not great, it will

be far better to get the patient into a hospital. At any rate, the accoucheur should have one good assistant physician, and two trained nurses, if possible. During labor our first object is to stop the hemorrhage, and the second, emptying the uterus.

There are three ways by which the uterus can be emptied—the first —Cæsarean section, the second—bringing on labor by the aid of rubber bags, distended by water to dilate the cervix; the third by rapid dilatation, and delivering the fœtus by podalic version. Cæsarean section raises the mortality for the mother, but lowers it for the fœtus. However, if there has been much hemorrhage, or trauma, Cæsarean section should not be considered, and only under the most favorable conditions, and where extenuating circumstances exist, should it be done. As to the use of rubber bags for dilatation of the cervix and controlling hemorrhage, I am not favorably impressed; it does not always control the hemorrhage—you cannot tell if the patient is slowly bleeding inside the uterus, and often it does not dilate the cervix, and after using the above method for hours, and the patient has been weakened by loss of blood, finally the uterus has to be emptied by the rapid method.

If possible get the patient on a table, if you cannot get her to a proper operating room. If the hemorrhage is bad, rapid dilatation will have to be done at the home, but it is best to put the patient on a table —an ordinary kitchen table will do. Cleanse and shave the parts as for any vaginal operation; have patient completely anæsthetized. This, I think, is often the cause of lacerations and shock to the patient, because this important detail is not carried out. The legs should be flexed upon the abdomen. It is scarcely necessary to mention the importance of being absolutely sterile, as the accoucheur is attempting to do a far more dangerous operation, from infection, than a laparotomy. He should have taken the precaution to prepare all the stimulants that have been suggested to be used in postpartum hemorrhage. After the patient has been anæsthetized, and after finding where the placenta is attached, he should go into the cervix so as to disturb the placenta as little as possible; first, dilate the cervix fully, if the hemorrhage is not too great to prevent dilatation. The dilatation should be made by the hand, this being the best instrument that has ever been invented for rapid dilatation of the cervix, though the dilatation may be started by a rapid dilator. After dilatation has been completed, the hand should go inside of the uterus when the bag of water is ruptured, and if possible, get both feet. If only one can be gotten, bring it down outside of the vagina and lasso it with a sterile bandage lasso, then let it go back in the uterus, and by this time you can probably get both feet in one hand. Grasp them so that they will be brought down with

the toes toward the hollow of the mother's sacrum. If at any time, while the hand is in the vagina, one of the baby's hands is protruding, lasso it also, as it will be a great assistance in bringing down the hands, if they are above the head in "after-coming head." The reason the feet should be brought down with the toes turned toward the mother's sacrum is that this makes the baby's chin rotate so that it is in the hollow of the sacrum, which makes the head much easier to deliver. As soon as the feet are delivered, the extremities and body should be kept covered with a warm, dry towel to prevent the baby from trying to breathe before the head is delivered. Some advise to bring the fœtus down only until the buttock is down on the perineum, and allow nature to take its course. They claim that this does not exhaust the mother as much as completing the delivery, but I do not think so. The danger of hemorrhage is not over until the fœtus is born, the placenta delivered, and the uterus contracted. The dangerous part of it to the mother is in turning the child, and not in delivering the after-coming head, but all of it should be done while the mother is anæsthetized, and the quicker it is over the better it is for the mother, and certainly for the child, provided, of course, it is done in the proper way. Traction should be made carefully and not by jerks, and should be made in the right line; ten pounds of traction in the wrong direction may do more harm than one hundred and fifty pounds in the right direction and in the right way. It will take some time to deliver the arms, especially if they are over the head, and if you have a lasso over one hand it will be of great assistance in delivering the first one, and the second arm is much easier to deliver than the first. Be sure not to make traction upon the body until both arms are delivered. It should take about four minutes to deliver the arms and from two to four minutes to deliver the after-coming head. The head should be delivered by putting two fingers in the mouth, which should have rolled to the hollow of the sacrum. Traction should be made in this way on the lower jaw with the body of the child resting upon the arm that is in the vagina—the other hand like a "Y" across the neck; gentle traction in this way should be made, remembering the curvature of the vaginal canal. At the same time the assistant should make pressure above the mother's pubic bones, on the after-coming head. This will be of great assistance. I think the rapid delivery is far preferable to the slow method, and I cannot agree with those that think it causes great shock to the mother. There is danger of ruptured uterus or of lacerating the cervix, but not near as much if the mother is well anæsthetized. There is more danger if the bag of water has ruptured, and the fœtus is well down in the pelvis before the operation is begun.

ECLAMPSIA

The mortality in eclampsia is still from 20 to 45 per cent. for the mother and 30 to 60 per cent. for the child. Such high mortalities rarely accompany surgical complications, hence the patient deserves as much, if not more, consideration, than does the surgical patient. She deserves at least two good physicians, two trained nurses, and, if possible, hospital facilities, and since now every locality has automobiles, and as a usual thing the roads are so that they can be traversed any time of the year, it is a matter of only one or two hours until a patient from any locality can be gotten into some hospital. There are three general plans of treatment—two extremes and one occupying the middle position. Dührssen's dictum is, after the first convulsion, put the patient in a deep sleep and deliver at once. The other extreme is to put the patient to bed, give her narcotics, such as chloral, morphine, using stimulants, bleeding, etc., and await the natural termination of pregnancy and labor. Those accoucheurs occupying the middle position use medical treatment more or less and hasten the labor, if the patient's condition is evidently going from bad to worse. Experience is accumulating to prove that the rapid emptying of the uterus, with the patient thoroughly anæsthetized, after the first convulsion, gives the best results. Peterson collecting 615 cases of early delivery, as soon as possible after the first convulsion, finds the mortality 15.9 per cent and compares this with the same mortalities of 28.9 per cent of the same maternities, under so-called conservative treatment. Another table shows 4 per cent and 31 per cent, respectively. R. Freund reports 551 cases of eclampsia from the Berlin Charite, which were delivered within an hour, with no deaths. The method of delivery should depend largely upon the advancement of labor. If labor is advanced so that the cervix is dilated and the head engaged, forceps should be applied and the fœtus delivered while the mother is under anæsthesia. This, of course, could be done immediately, and at the patient's home, but otherwise the patient should be removed, as suggested, to a hospital. As Cæsarean section still shows a very high mortality, it is far preferable to dilate the cervix by either the rapid dilatation, or by the use of a rubber bag, distended by water. I do not think that, when the mother has had a genuine convulsion, the slower method is at all feasible, but think that the rapid dilatation, under the same plan as suggested in placenta prævia, is far safer. I hope no one will construe what I have said in regard to rapid dilatation of the cervix, or podalic version, as being slight operations. They should not be employed unless there is a pathological condition justifying their use.

In conclusion, it has not been my purpose to bring you any new or easy plan for handling these emergencies, but rather to impress upon the general practitioner that he should have some definite plan for treating these cases. I have endeavored to show how I have cared for them, but do not claim my way to be the only or most scientific one, but I claim that I have successfully put it into practice, and this is what I think every physician who is going to practice obstetrics should do, have his plans so well matured that he can put them into practice not only in the four emergencies that I have called to your attention, but in all other emergencies in obstetrics. Nothing should so appeal to the general practitioner. Are not the mothers and newborn babies the mainstay and hope of the home, and is it not in obedience to the first divine command given to us to "be fruitful and multiply, and replenish the earth and subdue it," that the mother is in this condition? And is it not on account of confidence in your skill that you have been engaged to attend her? Therefore, should we not merit the confidence that has been placed in us?

DISCUSSION

Dr. E. B. Lattimore, Shelby: Dr. Alexander has given us a very complete and instructive paper on the subject. In discussing eclampsia, he did not mention a remedy which, if given in sufficient doses, I believe will save all such patients. I refer to Norwood's tincture of veratrum. I give it in ten drop doses, hypodermically, as often as needed, every half hour if necessary to control the convulsions. Of course I agree with him as to the importance of making the delivery as soon as possible. His statement about good roads and rushing to the hospital is all right theoretically, but I have had eclampsia occur in homes which are accessible to bridle paths only, and in these cases we must rely on drugs, of which I consider veratrum the best.

Dr. L. B. Evans, Windsor: I do not think it has been brought out that even after eclampsia has developed elimination is still in order and the most important part of the treatment. I think a quick saline and heavy sweats is the safest and best treatment for a woman in the early stages of eclampsia where the uterus is not fully dilated.

Dr. N. C. Hunter, Laurinburg: The subject is, of course, one that all practicing physicians have to be familiar with, and I am certainly glad to have it discussed.

I think I might mention as useful in postpartum hemorrhage to take the cover off the woman and dip a towel in cold water and place over uterus. She is frequently too heavily covered and the chilling

by removing the cover and applying the cold towel over uterus usually causes prompt contraction. The simplicity and harmlessness of the measure especially recommend it, along with its prompt efficacy.

Dr. A. A. Kent, Lenoir: This paper is certainly very beneficial to every general practitioner because it is so full of instruction. It is even more suggestive of lines of practical thought for discussion. There is no doctor here who might not contribute something of value from his personal experience with this disease. What he might have to say may be just the thing that I need to know. I may say something that will be profitable to somebody.

One of the first things that suggests itself to me, and I do not think I have heard it mentioned, is prevention. A large percentage would not have eclampsia if the doctor could see them at the proper time, make proper examination, and if he can, find the cause that is going to lead to eclampsia. See your case in time. Try to find the lurking cause. If you can get your case in time, remove that cause and prevent the eclampsia, rather than wait until the crisis and then have to relieve.

Many times the doctor does not get to see his patient till he is called to the bedside in the case of labor, and then he must meet conditions as he finds them. To my mind there are several causes, any one or more of which may be playing a more or less important part in producing the particular case in hand. In some of them only a single one of the causes is manifest, as, for instance, in those women who are very sensitive to pain. The general condition of the woman is good, but she is unduly sensitive to pain. The pain seems to be the chief factor in producing the convulsion. To relieve that pain will tide you over with not more than one or two convulsions. These cases usually occur in primiparæ and are antepartum. A dose of one-half grain of morphine given hypodermically will quite frequently enable you to get along. It will be better to resort to anæsthesia, dilate, and deliver. The combined treatment certainly does relieve the pain, meets all indications as to cause, and she gets on well.

Some of these patients are apparently in good physical condition except that they are so full of blood that they are not only surcharged with blood but seem so full of some explosive force that it must expend itself in convulsion. Bleeding will relieve the situation and carry you along successfully. Do not be afraid to bleed too freely.

In other women there is great pallor due to anemia. There is general swelling. There is diseased condition of the kidneys due to pregnancy. They are the cases in which you can do most to prevent if you have seen the case in time to get in your preventive measures. In these cases I have found that blood letting does good, but do not rely entirely

upon it. Use other remedies as well. One of the best in my hands has been saline infusions. By first drawing blood, with it you withdraw a considerable percentage of the poison from the system. Following this with the saline infusion you not only restore the necessary amount of fluid to the circulation, but you dilute the residue of poison left in the blood. You change the condition of the blood and improve the general condition of your patient. I have observed that very soon after you have given an infusion of normal salt solution you will have produced a profuse perspiration, which is one of the best means of eliminating the poison. I think if I had to be narrowed down to one means of treating postpartum eclampsia I would choose blood letting supplemented by salt infusion.

Dr. K. C. Moore, Wilson: My early experience with eclampsia was very sad; lost nearly all of the cases I was called to attend. These cases were those who did not intend to have a physician, and had waited until after they had several convulsions before calling. I believe, as the doctor before me, that most of our treatment should bear on prevention, and I have made it a universal practice that whenever a patient presents herself to me for attention I make blood pressure readings as well as urine examinations as a part of my prelabor care. I like to get these cases as early as possible for blood pressure readings. A normal case should give a low pressure all the way through the pregnancy. A case who shows a pressure of 115 at the third month and gradually climbs to 140 at the eighth month is evidence to me of a certain amount of toxemia. On the other hand, if the pressure in the early months of pregnancy is 130-140 and remains at this point throughout the pregnancy, no toxemia is evident.

By the systematic use of the sphygmomanometer, I have practically eliminated eclampsia in the cases I have had charge of throughout the pregnancy. I believe the blood pressure readings will show a developing toxemia before the urine does.

I am a great believer that the sooner you empty the uterus in eclampsia the more favorable will be the outcome.

Dr. J. R. Alexander, closing discussion: I have nothing further to say, but thank the members of the Society for the interest they have shown in my paper.

MEDICINAL AGENCIES IN LABOR

Dr. Annie L. Alexander, Charlotte

The chief concern of the obstetrician for the patient is safety—safe delivery of a living child to a happy mother.

To relieve pain and prevent shock during parturition are of great importance.

The morphine scopolamine combination, known as twilight sleep treatment, has largely fallen into disuse. I have no personal knowledge of its use. Those who have used it most intelligently give it an important place in the first stage and the early part of the second stage of labor. The use of it requires the constant attention of an experienced physician and good nurse from start to finish. It is impossible to tell how the combination will affect a highly nervous patient. It may soothe her or she may become highly excited and hysterical. It may cause asphyxia in the child. It may prolong labor and the use of forceps may be rendered necessary.

Morphine $\frac{1}{8}$ grain, atropine $\frac{1}{150}$ grain in the first stage of labor is highly efficacious in relieving nervousness and promoting dilatation with lessened suffering. The bromides are of importance and value in relieving nervousness. Ten or fifteen grains of chloral hydrate by rectum relieves nervousness and promotes dilatation. Hysteria in labor, which is rare, may be relieved by giving $\frac{1}{20}$ to $\frac{1}{10}$ grain of apomorphia. One of my patients with hysterical convulsions responded nicely to $\frac{1}{10}$ grain.

During the second stage of labor, nitrous oxide and oxygen have their strong advocates. Their employment requires experience and skill and is not adapted to the use of the average physician with the great majority of patients. They are not suitable for surgical procedures nor prolonged anæsthesias. Ether and chloroform are exceedingly useful in the second stage of labor. The choice of the two anæsthetics lies with the physician. To mitigate suffering in the second stage, I almost invariably give chloroform, just a few whiffs at the beginning of each pain. It renders the pain less acute and more bearable, and encourages the patient to use voluntary effort. Chloroform is less disagreeable and more quickly influences the patient, and she more quickly resumes the normal than with ether. Near the end of the second stage the woman is rendered unconscious at the moment the child is born, waking quickly with no bad results.

In doing a version or forceps delivery or any operative procedure requiring prolonged anæsthesia ether of course is given the preference.

No woman should be allowed to pass through labor without an effort being made to mitigate her sufferings as much as possible.

Pituitrin has a distinct and limited field of usefulness. When it was first introduced it was hailed as a substitute for forceps. The many accidents which occurred, rupture of the uterus, lacerated perineum through precipitate delivery, and death of the child from pressure, showed pituitrin to be a two-edged sword. When the pelvis and fœtal head are in proportionate size, the cervix dilated, the head well down in the pelvis or on the perineum, and all that is needed is a little more force, then pituitrin can be safely given. If the head is not on the perineum, a second dose may be necessary to complete the delivery, as the effects of pituitrin last only thirty minutes. Five drops will produce as strong contractions as fifteen, the effects lasting just as long. For checking or preventing postpartum hemorrhage, pituitrin is the best remedy we have for instant use. It must be followed by ergot, as its effects are brief.

Ergot, which at one time was used extensively in labor to increase contractions and hasten delivery, has been practically abandoned because of the hard tonic contractions and the resulting dangers it produced. It should be given only after the uterus is empty to maintain sufficient contractions to prevent hemorrhage and stimulate involution.

DISCUSSION

Dr. B. O. Edwards, Landis: This paper leaves little to be said. I want just to mention one or two, especially morphine and hyoscine. I think that morphine and hyoscine are great aids in properly selected cases; I have seen some splendid results from their use in cases of rigid, unyielding cervices. I inject morphine ¼ grain and hyoscine 1/100 grain, which causes the cervix to dilate and hastens labor. I think pituitrin is one of the most valuable aids in obstetrical work. I want to add that it should be used only in special cases, where the pains have given out or are too weak to be effective. For instance, I saw one case that had been in labor for twenty-four hours, attended by a midwife; the pains had not given out, but were not strong enough to effect delivery. I gave one c.c. of pituitrin, with the result that the child was delivered in fifteen minutes, the mother was relieved of suffering, and the mental anxiety of the family and friends was changed to joy. Of the anæsthetics, I prefer chloroform instead of ether, as we usually have to use it ourselves without the assistance of a nurse. We have to use things we can use most conveniently, as we have to be doctor and nurse too, and I find that chloroform is easier to use and leaves no bad results.

Dr. D. A. Garrison, Gastonia: I do not do much obstetrical work, but I can not refrain from saying something on this paper. I believe that all these drugs have their good points. Pituitrin is one drug that is used out of place; it is great in its place, but it ought to be used with great caution. I have seen bad results come from its use. I have not given much myself. It is good in hemorrhage from miscarriage, to contract the uterus. If you have perfect dilation and the uterus is not contracting well, the pains short and far apart, I first anæsthetize the patient (chloroform is what I use) and give pituitrin at intervals of ten or fifteen minutes, with no trouble and no laceration.

I want to thank Dr. Alexander for this most excellent paper.

Dr. Otho B. Ross, Charlotte: It seems to me that we let people suffer more in obstetrics than ever. We tell women to suffer until the time comes when we can put them to sleep. This paper presents methods to prevent this suffering. Of the agents mentioned, nitrous oxide oxygen seems to be the safest and to have the greatest range of usefulness. It is nontoxic. It is not difficult to give. It gives relief, and it does seem that we ought to give them relief from the terrible pains if possible.

Dr. J. A. Cooper, Bryson City: I want to say a word in discussing twilight sleep. I want to state that it is my experience that this drug has excellent effect upon the patient, but I want to give this warning: In the majority of cases you will have a case of sleeping baby and you will have to fight to resuscitate it, and this has caused me to discontinue its use.

Dr. Alexander, closing the discussion: I have nothing further to say except that pituitrin is potent for good, and equally potent for injury.

MEDDLESOME OBSTETRICS

Dr. Reid Patterson, Charlotte

The earliest reference to midwifery in Holy Writ is found in chapter thirty-five of Genesis, where we are told that Rachel, the wife of Jacob, died in giving birth to a son, although comforted by the midwife that she need not be alarmed over the outcome.

In the latter verses of chapter thirty-eight of the same book, there occurs another reference to midwifery, in which is described a rare occurrence. This was a case of twins, born to Tamar, the widow of Er, son of Judah, and one of the twins presenting by the arm, on which,

to distinguish it as the first-born, the midwife tied a scarlet thread. However, the beribboned arm receded, the second child came down and was eventually expelled first.

Moses, the Jewish legislator, who lived one thousand years before the time of Hippocrates, speaks of midwives as respectable and distinct among the Hebrews. In another chapter a very singular allusion is made—that is, the comparison of Jerusalem to a wretched infant, whose navel string is declared to be uncut on the day of its nativity.

While obstetrics is the most difficult and arduous branch of medical science, it at the same time is the most satisfying. Nowhere can the physician accomplish so much, both in the prevention of disease and accidents, and in treatment and operation.

Is labor in the woman of today a normal function? I say it should be, but is not. While statistics today only cover a little more than one-half of the United States, we know 10,000 women die annually from childbirth, and of the late or postponed mortality from disease and injury acquired during delivery, who are buried under another diagnosis, the number is far greater.

Sir Sidney Y. Simpson said that parturition is always physiologic in its object, but not in some of the phenomena and peculiarities which attend upon it in civilized life.

It is best to regard every labor case as a severe operation, and like the surgeon, the obstetrician should consider the strength of his patient in standing the shock, the asepsis and the antisepsis, the nature and technic of the operation. In order to make labor as nearly normal and physiologic as possible, it is, in the vast majority of cases, wisest to allow nature to proceed according to her own method, but it is unfortunately the habit of some physicians to institute proceedings at various stages of labor which afterwards prove harmful, and at best are inadvisable.

The object of this paper is to call attention to these procedures and I have, therefore, taken them up under the title of "Meddlesome Obstetrics."

The first thing under this title I would like to discuss is repeated vaginal examinations. Information as to the progress of labor may be obtained by means of abdominal, vaginal, and rectal examinations. By far the majority of cases of labor are conducted by repeated vaginal examinations and the other two methods are almost excluded. Repeated vaginal examinations are by no means essential, since the abdominal examination or palpation will show the position and progress of labor, while the rectal examination will reveal the presentation. I do not mean to convey the idea that vaginal examinations should be dispensed

with, but when rectal examination does not reveal absolutely or where there is unexplained delay in progress, or where certain complications exist, such as placenta prævia, which demands an immediate diagnosis, a vaginal is certainly indicated. Undoubtedly there is great danger of infection from vaginal examinations, as proven by statistics from the Vienna clinics. A great many postmortems were being done by the students and they went from the morgue after doing these autopsies to the lying-in room. In consequence the mortality rate among the women from puerperal infection varied from 18 to 31 per cent, which proves the need for sterility in doing vaginal examinations.

A great many physicians on entering the delivery room seem to be obsessed with one idea, that of accentuating the speed of this particular case. As a consequence of this hurry many methods of speeding up have been used, such as manual dilatation of the cervix; dilating the cervix manually in trying to hurry labor along may cause cervical tears, which may be very small, but as labor progresses and the presenting part is forced into the cervix, these small tears will become large ones, which may extend through the cervix and occasionally through the lower uterine segment, which may lead to the death of the patient from hemorrhage or infection.

Pituitrin, a powerful drug that is being used to a great extent in obstetrical practice, is a very dangerous drug if used before it is indicated; it should never be used without exhausting one's ability in obstetrical diagnosis, and even then, after its tumultuous visitation, the uterus usually needs the steadying hand of ergot. Every physician knows that pituitrin should never be administered unless the cervix is fully dilated, and in small doses repeated if necessary.

In my own personal experience, I find I get much better results and am able to control the pains with one-fourth c.c. and prevent perineal lacerations to a much better extent than when larger doses were used.

Forceps is a weapon that is used to hurry labor in a great number of cases when not indicated at all and, like pituitrin, causes lacerations of the cervix if applied before the cervix is fully dilated. For the conscientious physician the interruption of pregnancy naturally involves great responsibility, but when it is the only method of saving the life of the mother, or when without it her life is placed in imminent danger, it is usually regarded as not only justifiable, but imperative.

It is not these pathological cases that I want to discuss, but it is the cases where premature labor is brought on solely for the convenience of the mother. When a woman's pelvis is a normal size and the child is not exceedingly large, and the physical condition of the mother is good, any physician who interferes and interrupts pregnancy is doing an

operation that is not justifiable. No physician should allow himself to terminate pregnancy, even if it is the eighth month, unless he has a pathological state and only then when preceded by a consultation. The dangers here are grave under the best of conditions. The child has, under such conditions, less chance of living and growing strong, than if the case had gone to term. If Almighty God intended labor to be terminated earlier than the ninth month, He would have so decreed. The dangers are numerous, as infection, hemorrhage, lacerated cervix, and less viability for the child. Again let me emphasize that premature labor should never be produced unless there is a known pathological condition either of the mother or child, and only after consultation, which may protect the reputation of the physician.

In conclusion, my paper is written to emphasize the following points:

First, that frequent vaginal examinations are unnecessary and harmful.

Second, the promiscuous use of pituitrin in large doses is nothing but criminal.

Third, that manual dilatation of the cervix is harmful.

Fourth, that the use of forceps, unless indicated, is harmful.

Fifth, a premature labor is against nature, unless pathological conditions exist, and should be frowned upon.

DISCUSSION

Dr. L. B. Evans, Windsor: Some time ago an obstetrical call came in my absence. Another physician answered the call and did what most of us would have done—used pituitrin. Immediately after the child was delivered the mother died suddenly. We can easily imagine what happened—the uterus ruptured.

Pituitrin increases the natural synthetical pains—it is a tonic. Ergot tends to hold the womb continuously contracted—it is clonic in its effect.

CRIMINAL ABORTION

Dr. Oren Moore, Charlotte

This paper does not attempt, in any full sense, to deal with the subject in hand, for its technical and ethical phases admit of too many ramifications, nor is the writer holding aloft a blazing torch of reform, demonstrating more stringent legal measures and widespread social education, but it is meant as a few remarks embracing one man's observations on a more or less growing condition, backed by a few facts from other men's experience and by fragmentary gleanings from the literature.

During the year 1918, the writer was called upon to treat twenty cases of attempted forced abortions, and was approached in about thirty instances with applications to induce abortions. I suppose, like other physicians, experience with this type of cases was not unusual, previous to the above date, but the frequency noted after this period began would be explained by two theories only—either I had achieved an unwelcome (and I trust an undeserved) reputation, as an abortionist, or the crime itself was much on the increase in my locality. This alternative made me decide to consult other physicians among my associates, both at home and in other towns, and I found that they too were undergoing the same unsatisfactory experience. I was, therefore, forced to the conclusion that deliberate abortion is increasing. The literature confirms this opinion, and if such proof is needed, I refer to Taussig's statistics from the professional ranks, and to the well known attitude and writings of the late Col. Theodore Roosevelt of the lay public, who as far back as 1910 had recognized the growing tendency towards limiting the size of families and birth control as a threatening evil. I therefore undertook an analysis of my cases, with the following results:

Of the twenty attempted cases, there was about an equal percentage of married and unmarried women, with a fair sprinkling of unclassified, *i. e.,* women whose domestic situation could not be determined. The methods used varied greatly—a large bone crochet needle, a hat pin, repeated springs from the top of a trunk to the floor, ergot, quinine, calomel, turpentine, and dilatation by doctor and nurses.

The results of the attempts in all twenty cases were successful in terminating pregnancy, but one died of peritonitis, one of septicæmia, one suffered a mutilating pelvic operation to restore health, one was desperately ill for five weeks with pelvic infection, two were moderately sick with infections for about two weeks, one induced an acute nephritis (turpentine case), and the others, after a thorough cleaning of the uterus, recovered without further event.

I next attempted to analyse the reasons both for the twenty attempts and the thirty-one who applied.

First of all, I wish to comment upon the assurance of these approaches; there seemed no doubt in the minds of the applicants that I would not comply. The only question of importance seemed to be the price to be paid. This forced me to believe that it is possible to have such work done by certain members of the profession. The reasons for desiring abortions were many:

A number were frankly illegitimate pregnancies. Others were married women who did not wish to undergo either the pain, inconvenience, or restriction of freedom of another pregnancy.

A few claimed poverty, a few claimed ill health, and one class I desire to mention especially, was comprised of five women who had been told by their physician, after each had passed through a severe or abnormal labor, that they must never become pregnant again—if they did, their lives would pay the forfeit. In each instance of this kind, I was unable to discover any physical reason for their apprehension, but found great difficulty in combating the morbid mental attitude induced by former medical attendants.

In conclusion, I wish to reiterate that I am not calling for new laws, more education—in fact I am not demanding anything—I am simply commenting upon an unusual professional experience which I trust is unique to me, but which I imagine has been the experience of many of my hearers during the past year or two.

I do wish to call attention to the fact that it is unwise to advise a woman not to become pregnant, unless some sure method of prevention is suggested. I do hope that a different system of sex education may appear, which will lessen the number of these cases. And, lastly, I can find it in my heart to hope that the professional abortionist in the medical ranks, when discovered, will be so severely dealt with that the unscrupulous laymen will know that such an animal no longer exists.

DISCUSSION

Dr. K. P. B. Bonner, Morehead City: This paper interests me greatly because I find that Dr. Moore's experience is very much in line with the experience I have been having. For five years I have had applications to induce criminal abortion at least once a week the year around. It is sometimes from the husband and sometimes from the wife, and indicates the growing sentiment against the act of motherhood. This sentiment, if allowed to gain ground, will result in injury to the home life of America. It seems now that after one or two children are born it is regarded by the mother as a reflection on her personally, and as a calamity, if more than two children come to bless the home. It is the custom to resort to any means, mostly on the part of the mother, rather than bear children. It is a growing custom, and you can't convince them that it is all right to bear children, that it is a natural process, and a high privilege and duty accorded to womankind.

Dr. N. C. Hunter, Laurinburg: The doctor's paper is instructive, and from a general standpoint interesting, but I regret the weakness of the medical profession, which gives way to a tendency to accept what everybody else wants to throw away. As a profession we are not moralists or reformers, although this is an individual prerogative none may

gainsay the members of our profession. For my own part, the time necessary to attend my own business and morals is not sufficient; but, as a profession, we have no more to do with the subject of criminal abortion than has every other profession or organization, and they all seem to love to leave it alone. The attitude of our profession toward other crimes should direct us as to this one. Our business is with the sick and injured, and to them we owe the benefit of our learning and skill, to all comers alike. Our attitude toward fallen members of our own profession should be one of justice tempered with charity. We are now almost clear of the liquor question, which has long been permitted to lie about our door, and I am not now anxious to adopt a substitute in the criminal abortion problem.

Dr. Oren Moore, closing the discussion: In regard as to whether the women are telling the truth or not, I would say that undoubtedly some women do falsify. In one case, at least, it was proven the woman did lie, but there were others of undoubted sincerity, who having absolute confidence in the family physician were appalled at the prospect of the hazard of another pregnancy. The point is that the doctor should be very careful in making a statement of this kind, as he does both the patient and the doctor who follows him a grave injustice.

As to Dr. Bonner's criticism, the viewpoint is what I mean to draw attention to. It may be that ours being a cantonment town conditions there were worse than in the average town of the State.

As to Dr. Hunter's remarks, I did not approach this subject with a view to raising an ethical cyclone, but I should like to ask how we are to escape the responsibility of which he speaks. I maintain that the doctor in every community is the director of public morality; if he is not, he should be. He is the keeper of public morals *per se*. It is not only his duty, but his very great privilege; and no man who realizes his responsibility can escape or refuse to take the high ground of morality.

THE INDUCTION OF LABOR IN NORMAL PELVES AT TERM

Dr. John S. Clifford, Charlotte

It is generally admitted that the present day fashions of dress and the modern facilities available for living and travel remove the pregnant woman farther away from the abode intended for her by "Nature primeval" and, because of these luxuries, she finds herself, at term, almost wholly unprepared for the travail that awaits her.

Since the termination of pregnancy in moderately contracted pelves by the mechanical induction of labor before term has produced results favorable both to the mother and to the child, the plan to induce labor in normal pelves at term naturally suggested itself and during the past few years the idea has been given consideration by several obstetricians. Brodhead in 1912 reported a series of 139 cases, and lately Reed of Chicago published his findings covering a series of one hundred cases.

Their opinion was that the procedure was worthy of merit and, when properly performed, it not only shortened the first stage of labor but was, oftentimes, reflected in the lack of shock sustained by the nervous system and freedom from postpartum exhaustion and materially shortened the period of convalescence.

There are three essential factors that must be borne in mind while undertaking this task; first, you must be satisfied beyond a reasonable doubt that the case is at term. In the last few years the public has realized the importance of medical supervision during the prenatal period and the expectant mother comes early to her physician with a clear knowledge of the date of the beginning of her last menstruation, and the other salient facts, such as date of "quickening" and, in primiparæ, beginning descent into the pelvis of the presenting part, are incorporated into the clinical record by the medical attendant himself. Measuring of the fœtus when in the vertex presentation by Auhfeld's rule is of doubtful value. As a practical method each case is a study in itself, and the physician must be guided by his best judgment when he arbitrarily designates a specific day as "term." The possibility of infection is the second point to consider. While it is true that every variety of pathogenic germs have been found on smears taken from the cervix, no untoward results have happened where the same care is taken of hands, instruments and dressings that is now routine practice in all well regulated hospitals. For this reason it is absolutely essential that this work should be attempted only in such a place and, preferably, in a department of the same that is devoted exclusively to obstetrical work. The third, and most important factor, is the technique employed in the operation. In my series of cases I have followed closely the method by Reed, which is as follows:

> Sterilize a Voorhees or Barnes bag, a Sims speculum, a pair of long Péan forceps, two pairs vulsellum forceps, one pair dressing forceps, two pairs compression forceps, a Goodell dilator, one tenaculum forceps, a hand-bulb syringe, with glass tubes and rubber connections for the bag.

The patient is prepared as if for delivery in dorsal position, one lip of the cervix is brought down, (usually even in primiparæ, the os is sufficiently patulous to admit the bag; if not, dilate;) the bag is emptied of residual air and fluid and the flattened end pulled out. It is now rolled into a compact mass like a cigarette, and seized with the Pean forceps so that the tips extend just to the largest diameters of the rolled bag; annoint with sterile glycerine, turn the curve of the forceps toward the patient's left leg, and introduce. As the bag enters, turn the bag to the operator's left —a quarter turn—so that when the operation is completed the forceps curve upward. Release lock on forceps, connect tube with syringe and force sterile solution slowly into the bag. Péan forceps may be removed as bag fills. Disconnect syringe after tying tube with tape when full, remove vulsellum forceps, put sterile pad on either side of tube.

Care must be taken that the membranes are not ruptured prematurely; in fact, should this accident occur it is probably due to faulty technique and is to be deplored.

The main idea is to have the bag act, not only as a mechanical aid to cervical dilatation, but as a dynamic stimulant to the contractions, which should increase in force and frequency until the cervix is fully dilated, the bag is expelled, physiological rupture of the membranes takes place, and the second stage of labor begins. From this time on the case is handled like one of spontaneous labor.

My series of cases include twenty-four patients, eighteen primiparæ and six multiparæ; there was no maternal mortality nor immature children. One child was born dead, probably due to injury caused by forceps applied in a persistent occiput posterior that made delivery long and difficult. Eight cases were delivered by forceps; in four pituitrin was given in the second stage of labor; and in four cases there was rather severe postpartum hemorrhage. I am reporting briefly below three of these cases, two in which the procedure was of undoubted value and the third in which there was failure of the method.

Case No. 1.—Age 28, primipara; pains began two hours after bag was inserted, increasing in force and frequency, bag expelled six hours later, pains grew weaker; after a delay of six hours membranes reptured, followed by no progress in presenting part for two hours; position right occiput posterior; mid forceps applied; difficult delivery; live baby weighing eight pounds delivered; length of labor sixteen hours.

Case No. 2.—Age 39, primipara, due November 26; refused bag, preferred to "let nature take its course;" took castor oil, one ounce, and quinine sulphate fifteen grains on alternating days for five doses, no result; finally, on December 10th, agreed to have bag inserted; pains began at 2 a. m.

December 11, continued intermittently all of that day, bag was expelled at 10 p. m., membranes ruptured at 3 a. m. December 12; living child weighing eight and a half pounds delivered 8:30 a. m. that morning; length of labor twenty-six and a half hours.

Case No. 3.—Age 24, primipara, due October 24; bag introduced on that day at 5 p. m., pains began two hours later, bag expelled at 10 p. m., pains stopped, patient felt no further discomfort. On October 27 bag was inserted again, cervix very soft, easily dilatable, slight pains experienced for about two hours; as patient expressed it, pains "died down" during the night the bag was expelled the next morning, cervix fully dilated, patient very comfortable; as presenting part was freely movable above the brim and no obstruction apparent a policy of "watchful waiting" was decided upon and on November 10, seventeen days after the estimated date of "term," labor began spontaneously and in three and a half hours a child weighing seven and a half pounds was born. This case was one where an error was made in estimating the date of maturity, but fortunately, on account of the patulous cervix, the bag did not perform its function.

SUMMARY

Our results warrant the induction of labor at term under the conditions and in the manner outlined herein. We wish to emphasize the fact that each case must be considered on its merits and that much depends upon the judgment and experience of the obstetrician.

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DISCUSSION

Dr. W. P. Holt, Duke: Dr. Clifford's technique is faultless, but I think if his plan were carried out we would have an astounding death rate. To know when the term of pregnancy is at an end is the difficulty. The old adage that "when an apple gets ripe it drops" is true of pregnancy. If we were to take the count of the women as to the time of the termination of pregnancy we would miss it in two-thirds of the cases. I think the procedure as a routine would become then "meddlesome midwifery."

Dr. Oren Moore, Charlotte: I do not want to get on my feet more than necessary, but I want to come out and say that I am opposed to Dr. Clifford in this business. I approve of the previous paper read by Dr. Patterson, and I feel that this is meddlesome obstetrics and not justified in perfectly normal cases. As to abnormal cases— I have had trouble in getting away with my abnormal ones.

Dr. Clifford, closing the discussion: This discussion gives me opportunity to make clear certain points. No originality is claimed, but I do maintain that the procedure is worthy and a distinct advance in this branch of medical science. It is a notorious fact that obstetrics has lagged behind, and it is in a large measure due to the medical profession itself. There are many men who accept these cases and frankly state that they despise the work and are not equipped to meet the emergencies that arise, so naturally they condemn any method that would tend to complicate their routine.

The lay people are awakening to the fact that the prenatal state is most important, and the intelligent woman places herself early under the care of her physician. He should not be unworthy of her confidence and fail to give her the best possible attention. The technique of inducing labor should be carried out in the minutest detail, and if this is done the accoucheur may have no fears that any untoward result will occur.

Replying to Dr. Whittington, I would say that possibly 65 per cent. of primipara go on into spontaneous labor anywhere from a week to ten days before the end of their "term." It is the other 35 per cent. with which we are concerned in this paper, and by intelligent management we hope to assist them in making a successful finish instead of having them "rock along" and finally terminate in one of the many distressing complications that may happen. The old slogan, "Let Nature take its course" is only the defensive weapon of a man who is either unable or unwilling to give his patient the scientific care that present day methods demand.

I know, of course, that this might be called "meddlesome midwifery." In reply I can show some splendid results, which, after all, is the best rejoinder one can make.

SOME SCATTERING REMARKS ON OBSTETRICS, WITH REPORT OF THREE CASES OF RUPTURE OF UTERUS

Dr. N. C. Hunter, Laurinburg

Mr. Chairman, Ladies and Gentlemen of the Society:

As you will doubtless soon conclude, I am no obstetrician, but I am compelled to do a certain amount of midwifery in a general scramble for a living. I suppose I shall have to excuse Dr. Alexander for requesting a paper on this subject from me, since it is a fair supposition that the doctor who stayed off the firing line had only to "caper nimbly into a lady's chamber" as occasion required and the chase after sore toes and stomach aches permitted.

To many the general part of my paper may be uninteresting, but to the beginners it may appeal, since the practice of obstetrics is one of the great avenues to fortune, not only in itself, but because he who attends the expectant mother in her travail and ushers into this mixed existence a new bunch of possibilities in which she sees the fruition of her hopes, establishes a reputation reaching through all the toilsome maze of a general practice, and becomes at once initiated into all those poor, simple human secrets which are spoken only in low tones and reluctantly by the female patient to her physician. The three cases reported have interested me in many ways, and you shall have them for what they are worth.

My subject is general, a fortunate circumstance, which gives me opportunity to travel well marked highways and leaves dim roads and short cuts for better guides in discussion. May I not begin by congratulating womankind and the profession on the rapidly decreasing popularity of alcohol as a satellite of labor, however brought about? You all, or nearly all, remember when no approaching birth was regarded as provided for without a quart of liquor; you also have observed that "When Whenie Wenies see the light it makes the gossips chatter bright," allowing it did not lay the old man up in the barn, or worse—in the lying-in chamber—till the storm was over, or incite him to violence against his erstwhile friends. Fortunately the patient rarely got much of it. I do recall one woman who drank a half pint straight and at once proceeded to do her duty, suffering no visible ill effects; she was an exception and probably a toper. To my mind, however, a very few conditions may arise in the ten months of a woman's life when she should be under the eye of an obstetrician which may be benefited by a carefully selected and used preparation of alcohol; but these conditions are not essentially concomitant with the period under consideration. To the sway once held by alcohol in the sacred realm of maternity I think memory need raise no trophies, except, perhaps, such as genius may weave in the fabric of historic fiction along with the "groaning ale" of moated castles and the long green bottle of Oliver Twist.

Let's follow this subject of obstetrics with the candidate. She is married, maybe not; she is sick, maybe not; she vomits, tries to or feels like it, at the most inconvenient times or places, perhaps. What will you do for her? Comfort her, feed her, and look to her general health. She vomits all or nearly all of her food, she emaciates, she weakens, her temperature gets up a little and stays up, her pulse goes to a hundred or more. Get busy. Try the conservative remedies, not too long. Dilate the cervix, catheterize it, empty the uterus and don't be too slow

about it. I have seen life lost by neglect; I have seen it barely saved after procrastination; and I have seen much good and no evil follow prompt radical treatment. Just five remarks:

First, a simple vaginal examination rarely but surely cures some.

Second, when you dilate and curette the uterus you will find it soft and flabby—better tampon cervix and vagina for twenty-four or forty-eight hours to dilate cervix and irritate the uterus to contraction; you may thus cure your patient and will surely make operation easier and safer.

Third, you cannot take the patient's word without circumspection; a nauseated, pregnant woman feels like she vomits everything and then some.

Fourth, the patient with hyperemesis is drying up, she absorbs fluids readily by the rectum, both food and stimulants; she cannot throw up a hypodermic.

Fifth, normal pregnancy is not the only cause of nausea or even hyperemesis, and it confers no immunity, not even against additions in kind, contemporary or subsequent, either *in loco naturalis* or extrauterine. She gets well, possibly only partially so. Keep her well or prevent her from getting sicker.

You will not neglect her diet, her habits, or her spirits. The workingwoman does better than the indolent one. The diet with a spare nitrogen content may be safe but it is not sufficient. Nothing is too bright or cheerful for the woman burdened with the service and creation of man. If she has had hyperemesis you will be especially watchful for chorea and the mental ailments of pregnancy. To insure emptying the breasts after delivery you must see that the nipples are developed, and to provide for the burden of a double circulation and elimination you may well, in most cases, give cream of tartar and digitalis in the last weeks of pregnancy—indeed, I regard this as essential in many cases even with no albuminuria or heart murmurs. Get hold of her as soon as you can and don't let her go until after the puerperium, and then examine her for retroversion of the uterus.

With all the emphasis I can command, I want to say that the attention the pregnant woman receives from conception to labor is much more important than that she receives at normal labor, even with the puerperium counted with the latter—indeed, as I have often remarked, all the doctors for ten miles around cannot stop labor, but almost any with reasonable qualifications and attentiveness can bring the woman safely to it or save her before term.

She develops nephritis. Now, I regard nephritis incident to pregnancy as a condition secondary to the presence in the blood of certain poisonous and very irritating acid substances occupying a morphological chemical position between albumins and urea. I think the substance, as other and better known irritants sometimes present in the blood, cause first a congestion with albuminuria, then inflammation in varying degree in the excreting structure of the kidney with resultant diminished excretion; I believe less urea is excreted because less is formed, and that it is not the retention of the urea which produces the toxic symptoms but the retention of the morphologically imperfect compounds precedent thereto, and that the quantity of the urea excreted is generally an inverse index to the quantity of its antecedent in the blood. This substance is excreted only sparingly by the kidneys before they are damaged by it, and after they are inflamed hardly at all.

Now, the uremia, so called, is not so much a result of the nephritis as it is a concomitant; both are caused by the circulation in the blood of a poison accumulated there either because oxidation and the manufacture of urea are not up to standard or because the quantity is beyond the normal metabolic capacity, or both, and perhaps, too, because elimination by the intestinal glands and liver is impaired. Evidence supporting this theory is furnished by the occurrence of severe uremic symptoms without albuminuria, and even with a normal or nearly normal output of urea from the kidneys. At any rate, we know that the medicines which stimulate the liver and intestinal glands cause the maximum elimination and afford the best drug treatment; I cannot forbear to mention the value of calomel in urgent cases, perhaps combined with other quick acting purgatives, but never replaced by them. In the less urgent cases potassium bitartrate has appeared to me more valuable than anything else and I believe that, in common with other vegetable salts of the alkalies, it has a chemical antidotal effect on the poison in the blood that produces nephritis and uremia.

Now, it must appear that the most rational drug treatment is that which will cause the maximum elimination without increasing the embarrassment of the disabled renal structure, as is done by the cardiovascular diuretics and the genitourinary stimulants and irritants. Pilocarpin is much commended.

The hot pack is certainly valuable in all the stages and complications of nephritis; the use of fluids must be subject to judgment; if elimination by the bowels is active there will be thirst and fluids may be given very freely, otherwise there is danger of overloading the blood vessels and heart and increasing the embarrassment of the kidneys. Until metabolism and elimination of the nitrogen compounds return to normal

the diet must make allowance therefor and such articles as seem to assist these functions may form a goodly part of it, namely, grapes, apples, lemons, oranges, and some green vegetables; so far as I know, fats are harmless, but the minimum of salt should be allowed, even that in the butter; in the less acute cases and after the bowels are gotten and kept active digitalis and spartein may prove of great service, especially when the heart is damaged or weak; as a chalybeate nothing surpasses the old Basham's mixture.

She has been neglected and has convulsions or coma; you have before you only the full picture at the shadow of which you have been looking. Another position is stormed by this insidious enemy of cell life; the poison in the blood has assailed the delicate and sensitive nerve cells of the brain and cord as it did the epithelium of the kidney, the liver, and the intestine, and as the havoc is greater in proportion to the weakness of the ranks assailed the louder will be the cry for help —you have only a few reserves and the outcome hangs in the balance—the last natural fortress may fall with œdema of the lungs and its direct antecedent, œdema of the brain, at any time. What will you do? You may eliminate the quickest and surest way and reduce the blood pressure along with it—bleed promptly but not excessively; it has occurred to me that if a quantity of neutral alk. carb. solution, corresponding to the amount of the blood first drawn, be introduced into the circulation, a second portion of blood equal to the first might advantageously be taken, thereby doubling the rapid elimination without dangerously reducing the volume of the circulating fluid. I have not tried it, but believe it might do well in an emergency. Purge her quickly, the reason is obvious—by diminishing the fluid in the vessels an exosmosis from the pericellular spaces is set up and the poison thereby drained away into the capillaries and more slowly replaced by less toxic fluid after some degree of elimination has been achieved and metabolism is approaching normal. There are a few drugs which have an established reputation in treatment of this condition.

Morphia and chloral belong to the class of symptom medicines and act by physiologically counteracting the effects of the poison on the nerve cell protoplasm; while this may be of much value while elimination is being promoted, or naturally taking place as in milder cases, if these drugs are not used with a correct appreciation of their action their use may lead to grave errors; opium especially, while retarding absorption by the sensitive cells, retards elimination; it directly inhibits all phases of protoplasmic activity, and while in this condition the cell may be done to death unless prompt measures are taken to prevent it.

Atropin has been used with much success in pulmonary œdema and I am enthusiastic for its opposite, adrenalin, but I fear that it is only in the œdema of a failing heart that they are useful, whereas I regard the pulmonary œdema of eclampsia as secondary to grave lesions in the nerve centers, just as it is in brain trauma, but where there is cardiac and vascular primary cause I am satisfied of their merit, especially as regards adrenalin.

I am disposed to think well of veratrum, but my experience with it has been small and not very well studied.

I may sum up that the first principle in treating all systemic poisons is elimination, and remedies designed for any other purpose must here take a second place.

Evacuation of the uterus is regarded as essential in the treatment of urgent uremic symptoms. I cannot say that my experience has been encouraging, but all the cases in which I have seen it used or used it have been in very grave condition. I believe, however, that it is a legitimate and hopeful practice and, like most other radical measures, should more frequently be used early. Where the condition of the bony or soft parts is forbidding, especially in early eclampsia where it would be impossible to deliver through the cervix, and in elderly primiparæ, Cæsarean section now commends itself with much force to the thoughtful.

Concluding this subject—not one in the list of obstetrics pleads louder for early medical attention and the doctor who gets his cases early and looks after them will rarely in his own practice be confronted with the life-shortening proposition here presented.

She bleeds before the eighth week? More commonly than once supposed it is ectopic gestation—you cannot afford to forget this.

ECTOPIC GESTATION

I recall two cases only in my own practice where diagnosis was confirmed by operation and gross or microscopic findings; both were in the same patient and the first was diagnosed before rupture. It occurred several years after abdominal section, supposedly for retroversion of the uterus. The second followed the first in about three years and ruptured before I saw it. Though promptly diagnosed and placed in hospital under a competent surgeon, the woman almost lost her life from recurrent hemorrhage before operation.

The second case, seen in consultation, was regarded as an abortion, though ectopic was considered, and the error was not detected until intrauterine examination proved the uterus empty, then the abdomen was opened.

The third case, seen in consultation, had been taken to hospital, curetted and sent home. Abdominal section revealed the tube ruptured into the broad ligament, producing a small hæmatocele.

All three patients recovered, all three were multiparæ—one had had two previous abdominal operations, two had had one, and one none. I think I have seen several cases which recovered, more or less crippled, without operation. The collapse, and it certainly is not always present, is due more to shock than to hemorrhage.

She bleeds from the second to the sixth month? Ninety-nine times out of one hundred it is a beginning abortion; no living physician can tell how much of this bleeding the fœtus can survive.

The time-honored opium meets all indications as a sedative but may, in some cases where it must be given by mouth, be combined with bromides or chloral—an opium suppository often acts splendidly. Over the next most important thing, rest, the doctor unfortunately has less control. Specific treatment is here, as elsewhere, demanded when a specific cause is present.

In unavoidable miscarriage my experience and observation convince me that early, clean, and thorough instrumental removal of the ovum or its remnants gives by far the most uniform, prompt and satisfactory results. Need I caution you to have a reliable assistant? So long as all goes well, all is well, but in the cast of accidents, erroneous impressions or malicious motives, you may rue the day you spared expense or sought to hold your client's confidence by trying to be the whole thing. In this, as in all our practices, we should always bear in mind the great variety of people we must work for and the increasing education, not all good, and the exacting vigilance now common to every clientele. A well applied tampon or Barnes' bag, or both in cases that are not promptly curetted but in which abortion is practically sure, will make you sleep better.

She bleeds from the seventh to the ninth month? It is most likely accidental hemorrhage—tampon and deliver quickly—rarely is it placenta prævia; I have had no case in my own practice; in one case I saw in consultation, which was in reality a miscarriage between the sixth and seventh months, the placenta was nearly expelled into the vagina and the child was across the uterus, delivery was easy and hemorrhage slight; two other cases were seen in consultation and of one other case I have intimate knowledge—mother and child were saved in all three.

She is supposed to be at term but labor does not begin? Leave her alone except to examine her; she may not be pregnant.

She is at or near term and has pains? Now you should have examined her several days before to have determined the presentation; before doing this at any time near labor she should have had the vulva thoroughly cleansed with a liquid antiseptic soap and the hair clipped short; a rinsing with bicloride solution, one to four thousand, and a vaginal douche of the same is a safe and reasonable practice; her bowels should have moved before the bath, preferably by an enema—no matter how well the woman may have been cleaned up, the accoucheur may be and usually is dirty, and he must remember it. A neglect of the toilet may bring the woman to the surgeon later, if it does not do her more harm quickly than the attentions of the doctor do her good. The parturient woman does not get the kind of toilet she needs because ignorance, superstition, false modesty, and laziness stand in the way. She herself, those at home who should bear a responsible relation to her, and, I regret to say, the buttermilk doctor who thrives in this climate, are all to blame.

A few points I will mention: A liquid antiseptic soap that always comes clean—and see that it is used.

I strongly object to all p.p. douches except in septic cases or for hemorrhage, and the latter very rarely.

Nothing should be dragged from the anus to the vulva.

A simple device for keeping the bed clean, but one very difficult for the nurse and patient to understand, is to put the protecting material all on top of the bottom sheet, where it can be easily removed and replaced with something clean.

I prefer the chamber to the bedpan, but during labor and one week after it should be kept above suspicion and liberally rinsed with that rare fluid, boiling water; if the chamber is put in the bed it should be wrapped up and placed on a newspaper if nothing better is at hand. A clean napkin should be constantly worn—better, an antiseptic one. In bathing, the water should be drained from before backward.

The pains are slow? The less active measures and medicines fail? Try ergot or pituitrin, they act alike, only the latter is faster and more powerful—a wonderful drug indeed. The one indication for them both is uterine inertia, and the one forbidding circumstance dystocia from any cause.

As to pituitrin, its mode of action bespeaks its dangers, and its faults are but its virtues in excess.

As to ergot, no drug has been more maligned; it very rarely, if ever, causes tonic contraction; it is a slow and rather uncertain oxytocic but sometimes a very effective one. It is not useful after labor because it increases the flow by augmenting periodic contraction and increases

after-pains the same way—I say this from conviction, well knowing I am speaking counter to written and rewritten law. The early use of pituitrin, before it is certain that the head may rapidly and safely descend and before the naturally well-timed mechanism of labor and adjustment of the parts concerned permit, is not only unwise, but it is criminal, and he who indulges in the practice will sooner or later pay the price, even if his conscience must be the only collector.

The pains are regular, strong, and long? Give her one-fourth grain morphine by mouth if she suffers overmuch; nothing does so much good and nothing nearly so effective does so little harm; its effect is slow in onset and prolonged in action and the woman will be left in better shape at the distressing and anxious period just following delivery—the doctor who will not occasionally dull the keen anguish of labor with a little morphine is not a Christian.

The head is bulging the perineum and the pains are vigorous and regular? Give her a long whiff of chloroform at the gathering of each pain to prevent rapid expulsion and limit the chance or extent of perineal rupture as well as dull the pain; as the head emerges give her all she wants; the objections are rather more hemorrhage than normal, the child is partially anæsthetised, labor may be arrested before extrusion of the shoulders, and the mother is left dazed, crazed, and uncomfortable.

The babe is born! Appear visions of the blind asylum, courts of justice, both criminal and civil, jails, the Bureau of Vital Statistics, and the State Board of Health, a great white throne and the secretary seated thereon, clothed in robes of majesty and power; on his brow is a crown of fine brass and his sandals are of soft wool such as is seen in kings' houses, so that his feet are not defiled by the earth on which tread ordinary doctors; his countenance is radiant with the consciousness of worth and in his eyes slumber the fires of righteous anger; in his left hand he holds his pay envelope and in his right he twirls a big stick, while lying open before him is a great book of rules, filled with leaves which shall be for the healing of the nation before it gets sick and even after; dimly also, perhaps, the tired physician sees at the end of a long, rough, and winding road the hazy outline of the melancholy edifices that made Morganton and Dix Hill famous.

By a fortunate though not unusual exertion of nature the secundines are expelled *in toto*, she rests a little and the essential parts of her toilet are carefully, rapidly, and quietly remade and her bedding changed or readjusted. One remark: It has been said that the fate of the wounded soldier lies in the hands of him who applies the first dressing. Let me beg the inclusion of the exhausted, wounded, recently delivered woman.

She sleeps, as I fear my audience may, and though she is just entering a period of many perils and the responsibility is now for two instead of one, I leave her, while she is grateful and her family is happy and the memory of past pains is lost in present pleasures and future hopes. May she awake under the hand and eye of a worthy accoucheur from whom we may hear later.

I shall not burden you with the text or recent reviews on ruptures of the uterus or my own opinions thereon. I should very much like to hear a free discussion, and am sure you are entitled to be heard some yourselves.

REPORT OF CASES

About seven years ago I was called early at night to see a multiparous negro woman in a crowded, squalid cabin in the red hills near the Pee Dee River. She had been in hard labor for several hours and when I reached her she was making the most of her still vigorous pains. The child's hand and forearm protruded from the vulva and the shoulders almost filled the pelvis; her pulse was good and she seemed in surprisingly good shape generally. I had another physician with me, as I was looking for trouble. The choice appeared to be between version, and morcellation of the child, and I proceeded with the version, using all the care possible, as the waters had all escaped and the uterus never relaxed much. Reposition was very difficult but, this accomplished, delivery by podalic version was fairly easy; the baby was dead, its shoulder elongated, body bent and neck stretched to twice its natural length. The placenta was scooped out with the hand, and then appeared something that had an ominous slick feel which made me halt and consider; I followed it up and found it was the small intestine and protruded through a rent extending for about four inches through the vaginal fornix and a little beyond the internal os on the left side. We gave the woman some morphine and ergot and put her to bed with hips elevated, and next morning sewed up the rent through the vagina, leaving a good sized tube between two of the stitches. There never was any excessive external bleeding; the tube was expelled in about two days and the wound healed promptly; the woman's condition appeared to become very serious, the abdomen bloated, she had some fever and much vomiting and her pulse became small and rapid. Her attendants lost confidence in her doctors, I think, for they ceased attempting to carry out their directions and greased her from head to foot with lard and tar, after which she must have "made an uneventful recovery" for she was about her usual place and duties in about three weeks.

I was called to see the second case in consultation with an intelligent negro doctor—the woman was a multipara and gave no history of previous trouble at labor. I got from her doctor that she had been in labor something like twelve hours, the pains had never been at all hard and she had gradually become weak and sleepy and the pains entirely ceased; and also that she had been given neither ergot nor pituitrin. She was rather apathetic and her pulse was weak and rapid; abdominal palpation revealed general tenderness, no rigidity, and the intestines lying in front of the uterus in the hypogastrium, a condition rare but sometimes present in

health; there was nothing else unusual unless that the head was not fixed at the brim. Vaginal examination revealed the cervix widely dilated, the head freely movable at the brim, and a soft mass lying by and about it. During the examination, as during all subsequent manipulations, much dark and partially clotted blood and perhaps other fluid escaped from the vagina. I suspected rupture but more strongly placenta prævia, and sent for an esteemed colleague and we decided to turn; I passed my hand along the child's belly and turned with little difficulty but found a very strange feeling lot of membrane about the child; however, I kept my hand busy with the child and did not then investigate its envelope, the head became extended at the brim and as it seemed I could not extract it I tried to apply the forceps but failed; I was very careful with the forceps and feel sure I did not harm; finally by compressing the head all I could with my hand and continued effort I succeeded in delivery. I then removed the placenta, which was detached and shrunken and lay in the lower segment and vagina. On passing my hand up further it went through a broad transverse rent in the back of the lower segment, and behind the fundus, which was firmly contracted. The child appeared to have been dead for some hours; the woman was now extremely weak and apathetic and never rallied sufficiently to justify operation; there was very little fresh external bleeding.

The third and last case was seen in consultation with a colleague and was that of a rather fat and healthy looking white woman, the mother of six children; from her doctor I got this information,—I am sure he is a very careful and conscientious man,—she had been in labor five or six hours and the pains had been only fairly strong; about an hour before they had altogether ceased; he had given her, then, a dose of pituitrin without bringing on any pains, then he had introduced the forceps but found it impossible to lock them and at that time called me to the case. I found the woman quiet and disposed to sleep but anxious for something to be done; the pulse was rather quick and fast and of low tension. Abdominal palpation revealed the shape of child with unusual clearness. Vaginal examination showed the head firmly engaged, thus accounting for the absence of a classical symptom her attendant had needed to guide him; with little appearing to direct us except the inertia we decided to give another dose of pituitrin; on retiring a few minutes after this it dawned on us that the child was out of the uterus and we went back and satisfied ourselves of this sad state of affairs, and I want to tell you that in palpating abdomens for twenty years I have never felt anything more shockingly plain than I did that dead baby, from its neck to its soles. It lay laterally in the abdomen with its legs and thighs drawn up. It was now apparent that the mother was growing weaker and the pituitrin seemed to be without effect. A surgeon was called and in about two hours from the time I saw the woman got the abdomen open, extracted the placenta, lots of clots, and the child from the abdomen, the last with much difficulty, as its head was firmly engaged in the pelvis. The rent was across the antero-lateral part of the lower segment and very large. The woman almost expired on the table but rallied a little when put to bed and lived from completion of operation at about three a. m. till about 8 p. m. She presented a striking picture of severe secondary anemia with a flickering pulse, breathlessness, cutaneous anæsthesia, and almost complete paralysis of the legs, and with all this she was rather talkative and her mind remained clear nearly to the close.

DISCUSSION

Dr. N. P. Coppedge, Ellerbe: I have known Dr. Hunter a number of years and have frequently called him in consultation; his main characteristic is thoroughness. His paper is as comprehensive as the prayer of the old mountain preacher our president told us about in his annual oration at the Wrightsville meeting. While discussion of it might be fully as comprehensive, I wish to make only a few remarks. I have listened to the interesting papers this afternoon, and have been highly gratified to find that so many of the leading doctors agree with an idea that I have held for so long, namely: That a medical attendant should not stand by a woman in labor for an indefinite time without trying to relieve her suffering to some extent.

The best drug that I have found for this purpose, the most potent for good and the least for harm, is heroin hydrochloride. Begin with one-twelfth of a grain hypodermically, and continue to give one twenty-fourth to one thirty-sixth of a grain every three hours to the end of the second stage.

PITUITARY EXTRACT IN THE MANAGEMENT OF LABOR

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The pituitary body or hypophysis cerebri, a small ductless gland weighing about seven and one-half grains (0.5 gm.), situated in the sella turcica, consists of two parts, an anterior lobe of glandular structure and a posterior lobe chiefly of nervous tissue. That these two lobes should have entirely different functions is not so strange if we recall that they are distinct embryologically, the anterior lobe arising from an invagination of the buccal ectoderm, while the posterior is an outgrowth from the floor of the third ventricle and is connected with this ventricle by means of the infundibulum.

The knowledge concerning the function of this gland has been obtained by the two usual methods of study. First, by studying the effects of removal of the gland as a whole and then of the lobes separately; and second, by studying the effects upon animals of extracts of the whole gland and then of extracts of each of the lobes separately.

Concerning the anterior lobe, suffice it to say that extracts when injected into animals yield no immediate results, but that removal of this portion of the gland causes death in a few days, and that disease of this lobe produces marked changes in the growth of the individual. For example, hypertrophy of this lobe during youth causes gigantism

and in later life acromegaly, while underactivity, as in case of tumor of this portion of the gland, produces obesity and sexual infantilism.

Extracts from the posterior lobe, on the other hand, when injected into animals produce immediate and characteristic results (extracts from the posterior lobe usually contain also some of the pars intermedia). When extracts from this lobe are injected into the circulation, either intravenously or intramuscularly, there is in about three minutes a rise in blood pressure, increased peristalsis of the intestines, and increased urination. In the Wake Forest Pharmacological Laboratory, five minims of pituitrin injected into the artery (vesical branches) supplying the bladder of a rabbit with the viscera exposed, caused the bladder to contract and expel its contents within thirty seconds. Seven minims of pituitrin injected into the superior mesenteric artery of a rabbit caused active intestinal peristalsis in one minute. In dog with carotid artery connected with mercurial manometer, one c.c. of the pituitrin injected into the jugular vein produced a perceptible rise of blood pressure in three minutes and maintained the rise for about fifteen minutes. In these blood pressure experiments pituitrin not only raised the pressure above the normal but was also efficient in overcoming low pressure resulting from inhalations of amyl nitrite. In cases with the blood pressure previously lowered by the use of amyl nitrite, the pressure was raised as high as in the cases that had received no amyl nitrite. (All done under thorough general ether anæsthesia).

In a nursing animal, pituitary extract causes an immediate increase in the flow of milk both in amount and in fat content. This increase in the flow of milk is later compensated for by a decrease, so that for the twenty-four hours there is no real increase. Accordingly, it is reasonable to believe that it does not stimulate milk production but that it stimulates the plain muscle of the mammary glands and thus forces out the milk already formed. This extract also inhibits the flow of saliva and pancreatic juice. This action may be explained by the constriction of the blood vessels in these glands, due to stimulation of the muscular coats of the arteries, because we know that ordinarily the activity of these glands is accompanied by dilatation of their blood vessels, while injection of the pituitary extract does cause vasoconstriction of these vessels.

But the crowning effect of the extract of the posterior lobe of the pituitary body is on the uterus. Although it stimulates all smooth muscle, it undoubtedly has a selective action on the muscle of the uterus. If a solution of this extract is applied to an isolated section of the uterus of the guinea pig or rabbit, the muscle responds at once with increased

tonus, stronger and shorter contractions, and quicker relaxation, showing that the effect is not dependent on nerve connections. The extract acts by coming into direct contact with the plain muscle fiber. The action is local and not central. Lieb found the same effect upon the human uterus removed at operation.

This action is a great deal more pronounced on the pregnant than on the nonpregnant uterus. This remarkable fact may possibly be explained by assuming that during pregnancy the anterior lobe of the pituitary produces some substance which sensitizes the uterus to the internal secretion of the posterior lobe. This view is strengthened by the fact that during pregnancy the anterior and middle portions of the pituitary body undergo hypertrophy, but the posterior lobe does not enlarge, and yet only the extract from the posterior lobe stimulates the uterine muscle. As further evidence that this view is possibly correct, we may recall the phenomenon of anaphylaxis. The term anaphylaxis is used to designate a group of alterations of functions which occur when an animal is reinjected after an appropriate interval with the same protein solution. These alterations do not occur when the same dose of the protein solution is first injected. This may be made clearer by citing the fundamental guinea pig experiment. If a normal guinea pig is injected with a small quantity of normal horse serum, the animal shows no discomfort from it and acts in no way unlike its normal mates. This first dose apparently produces no harm, yet certain profound changes have really taken place. For if this animal is reinjected with the same horse serum after the lapse of several weeks, it now responds with severe and characteristic symptoms and may die, indicating that the organism has been made susceptible, or has been "sensitized" to this substance. Thus an apparently inactive substance becomes a very active substance after the animal is sensitized to the effect of the substance.

With this knowledge of pituitrin obtained, there is no wonder that the obstetrician and practicing physician at once realized that a new and effective weapon was added to their armamentarium. So, by combining laboratory experiments with clinical experience, one of the most notable achievements in the history of obstetrics has been made. We need now no longer resort to the use of forceps in cases of uterine inertia. Pituitrin will readily and safely overcome that difficulty. In such cases the tired doctor and still more worn patient are relieved without the necessity of an operation. In fact, this remarkable agent has almost relegated the forceps to the instrument museum in cases of uncomplicated delayed labors.

After we have made certain that there is no obstruction in the birth canal and no contraindication to its use, we should administer hypodermically to the parturient patient one-half cubic centimeter (seven and one-half minims) of pituitrin. But before doing this we should have everything ready and should not leave the patient after administering it, because in the great majority of cases strong labor pains will begin in from three to ten minutes, and usually there is no let-up until the child is born. If one dose does not accomplish the purpose, it is safe and advisable to repeat the same dose every twenty minutes until three doses are given. If these do not prove sufficient, it is needless to continue, and in such rare instances it will be necessary to fall back on the forceps. It is important to remember that in cases of uterine inertia the power of this drug to prevent postpartum hemorrhage, by keeping the uterus firmly contracted, is as valuable as is its power to bring forth the child.

However, it is not the object of this paper to praise the pituitary extract; it needs no praise. Its daily use by the practitioner attests its value. It is rather my purpose to point out some of its dangers, for like any agent which has the power to do good if rightly used, it has the power to do harm if wrongly used. It should not be used until the os is dilated sufficiently to admit at least two fingers; otherwise, it might contract the os and lead to rupture of the uterus. If there is any obstruction in the birth canal, or if the position of the child is unfavorable, the powerful contractions of the uterus caused by the pituitrin may cause rupture of the uterus. Too early use of the extract may cause premature separation of the placenta. Again, if used too early, before the birth canal has had time to dilate and prepare for the oncoming child, there might be laceration of the cervix and perineum, due to precipitate delivery. Also, too frequent and powerful uterine contractions may cause asphyxia in the new-born. That these dangers are not imaginary is seen in the citation by DeLee of eighteen cases of rupture of the uterus following the use of this extract. After studying 7,600 labor cases Vogt lays stress on the frequency of death of the fœtus following its use. Mundell has collected twelve cases of ruptured uterus, thirty-four cases of fœtal death, and four cases of asphyxia of the new-born after the use of this extract.

CONCLUSIONS

1. In uncomplicated cases of uterine inertia and when the cervix is dilated, the pituitary extract is an ideal agent, prompt and safe.

2. Given in badly selected cases it is potent for harm. *Corruptio optimi pessima*—the best thing ruined proves the worst.

3. Pituitary extract should be regarded by the physician as a man regards his pistol, legitimate and useful when really needed, but improper and dangerous when not needed.

DISCUSSION

Dr. Geo. H. Ross, East Durham: I am of the opinion that pituitrin is not needed often, and when it is used it is much better to administer it in small doses. About four minims every thirty minutes until the desired effect is a very safe method. But I admit there is a great difference and no one rule can be applied to all cases. We should remember that we are giving a dangerous drug unless cautiously used. I enjoyed the paper and am glad Dr. Kitchin gave it to us.

Dr. Kitchin, closing the discussion: In reference to the doctor's question concerning the dosage of pituitrin, I fully realize that there is ground for wide differences of opinion. The smaller dose which he advocates is better if you want a tonic effect, rather than immediate expulsion. But my view is that, before administering it at all, we must be sure there is no contraindication and no reason why the child should not be delivered at that time, and I am sure that if this is the condition there is no real reason for not giving the larger dose. I have never seen any bad results from the larger dose; but I have many times refrained from giving it at all, believing that in such cases even the small dose would have done harm. Be sure you have the proper conditions—then give a dose large enough to accomplish the purpose.

In this connection, we must remember that, although pituitrin resembles epinephrin in its general effect on smooth muscle, nevertheless repeated doses of epinephrin have the same effect—that is, after the effect of the first dose has passed away repetition of the same dose will produce the same effect again. This is not true of pituitrin—for example, a full dose of pituitary extract will raise the blood pressure a certain amount, but repeat the same dose several times and there is less and less rise and finally a fall of pressure. This is certainly true in the laboratory. This is another reason for not administering until conditions are favorable, and then giving the full dose.

ACCIDENTS ENCOUNTERED IN THE PRACTICE OF OBSTETRICS IN THE COUNTRY, WITH REPORT OF CASES

Dr. J. W. Halford, Lillington

My report covers the last five hundred cases of obstetrics seen in private practice. A majority of these cases were in the country, frequently many miles away from trained assistance. The physician doing this class of work is frequently brought face to face with the more serious complications of obstetric practice, with no assistance other than a sympathetic, though ignorant, colored "mammy" and a few badly scared relatives. It is in this dilemma that we recall having heard a classic on technic and mode of procedure in perineal or cervical laceration, or perchance just the successive steps and proper medication in the treatment of puerperal eclampsia, postpartum hemorrhage or some other complication. Under such conditions, and with two lives depending on our unaided ingenuity and dexterity, we can only envy our more fortunate brother doing this work in the city, surrounded as he is by trained nurses and as many consulting physicians as the importance and gravity of the case may require.

In 353 of the 500 cases I was in attendance early enough to diagnose the position and presentation. Of these cases 329 were anterior position with left occipito-anterior 224 times, or 63.45 per cent, right occipito-posterior, 88 times or 24.92 per cent.

Some of the cases recorded as anterior were primarily posterior, but were ultimately converted and are, consequently, listed as anterior.

There were 24 posterior positions, with left occipito-posterior 18 times, or 5.09 per cent, right occipito-posterior 6 times, or 1.68 per cent.

The face presented 6 times, or 1.68 per cent, all of which should be included in the anterior position.

The breach presented 11 times, or 3.11 per cent, which were also anterior position.

Transverse presentation occurred in 7 cases, or 1.04 per cent.

Podalic version was done in 4 cases, or .08 per cent.

Postpartum hemorrhage occurred 3 times, or .06 per cent.

Forceps were applied in 15 cases, or 3.0 per cent.

The cord prolapsed in 4 cases, or .02 per cent.

There were in my series two cases of spina bifida, one of which was further deformed by hydrocephalus. The second stage of labor in this

instance was completed only after a large amount of fluid was removed from the cranium, which was accomplished by passing a metal catheter into the cranial cavity.

In 500 cases multiple birth occurred 8 times, of which 7 were twins and one triplets.

Puerperal convulsions occurred 7 times, or 1.04 per cent.

Perineal laceration occurred in 24 cases, or 4.8 per cent. This includes laceration of first and second degree, having had no case involving the bowel or sphincter ani muscle. It will be noted that laceration of the perineal body has been my most frequent complication. When we hear a physician of more than a quarter of a century in the practice of obstetrics say he has never had a laceration in his work, we can truthfully say he has been very fortunate or very careless, probably the latter. It is my custom to carefully examine every patient for this unfortunate accident, and to make a painstaking effort at repair when it does occur. It is in this field that failure too frequently follows our efforts, and we should do our utmost to prevent laceration. The methods of manipulation are very numerous, but the principles involved are few and should be thoroughly understood; prevent hasty expulsion of the head, giving time for the perineum to stretch, which is best accomplished by preventing extension. Relax the perineum as much as possible by support with the left hand, gathering in tissue from each side of the perineal body. In primiparæ we have found our greatest safeguard in anæsthesia, with the patient on her left side. A great many of our early failures arose from using suturing material which was too quickly absorbed. Silkworm gut is the suture of choice and will give the best results. It should be remembered that sutures placed in the preineum are more quickly absorbed than in any other situation.

Puerperal eclampsia has been a frequent complication, and is not only one of the most distressing but one of the most fatal conditions we meet in obstetric practice. Our safest treatment is in prevention, closely observing our patient during gestation, making frequent examination of the urine for albumin, casts and urea, and prescribing proper personal hygiene.

DISCUSSION

Dr. W. P. Holt, Duke: I am sure that all of us have enjoyed this paper of Dr. Halford's and it seems to me it should teach the average practitioner a lesson—that is, to keep a careful record of his cases. Very few do this, and unless a record of cases is kept we cannot keep up with the work we do. This paper demonstrates the value of keeping a record of cases, and in making careful diagnosis in each case.

By keeping case records we shall improve, by reference to previous cases. With most of us, when we dismiss a case it is forgotten, and the history of it is of no value to us for future reference. I think this is a very practical paper.

Dr. W. S. Rankin, Raleigh: Every one of us has been much impressed with the careful and systematic record that Dr. Halford has made of his cases. One of Dr. Osler's great lessons to his students was directed to developing in the student careful technique and accurate diagnoses. He taught this lesson by saying that the student who made a careful dissection of Merkel's ganglion would be the doctor who would make a careful examination of his patient and an accurate diagnosis.

Accurate records are of great practical value to the individual physician. If such records were of standard form and kept by a number of physicians, so that their information could be compiled and compared, the value of such records would be of great importance not only to the physicians but to the State as well.

It occurs to me that it would be of mutual advantage to the individual physicians and to the State if a committee were appointed to prepare standard forms of case records. I believe if such forms were properly gotten up and an appreciable percentage of the physicians of the State would agree to use them, the State Board of Health would be justified in printing and distributing such records to the physicians of the State for general use. I therefore move, Mr. Chairman, that a committee, with a representative of the State Board of Health, be appointed to consider, formulate, and later submit standard record case forms for the further action of this society.

Dr. M. H. Fletcher, Asheville: Let us hope to work out this system on the lines suggested by Dr. Halford; it is as far as we should go at this time. Just obstetrics—don't let us take in too much territory.

Dr. K. P. B. Bonner, Morehead City: It has seemed better to take plenty of time. I have kept records of obstetrical cases and have kept records of other cases, too, and it has well passed the five hundred mark. If a card system could be devised it would very materially help in the keeping of records, but it would have to be a different form from the present stub system of the Bureau of Vital Statistics.

The Chair entertained a motion from Dr. Holt that a Forms Committee be appointed from the State Board of Health and the Society to devise a standard form of record, and that the State Board of Health print such forms free of charge.

Dr. J. M. Parrott, Kinston: My remarks were in nature of suggestion: I believe it can be worked out by the committee, and I second Dr. Holt's motion that a Forms Committee be appointed.

This motion was carried.

COMMITTEE

Dr. W. P. Holt, Duke
Dr. J. W. Halford, Lillington
Dr. W. S. Rankin, Raleigh

Dr. J. W. Halford, Lillington, closing the discussion on his paper: I am gratified that I have been instrumental in starting some movement which will result in better records being kept.

PUBLIC HEALTH AND EDUCATION

A PLEA FOR COOPERATION UPON THE PART OF PHYSICIANS AND THE PUBLIC IN PUBLIC HEALTH ACTIVITIES

D. E. Sevier, M.D., Asheville, Chairman of Section

Mr. President, Ladies and Gentlemen:

I wish to call attention to some of the problems which are daily confronting the medical profession, and to urge betterment of conditions. It is useless to say that while we have made rapid advancement within the past few years we have not reached that high standard of efficiency which should have been reached in matters of hygiene, sanitation, and public health.

There exists an unawakened energy among our profession which, if properly stimulated, would place our State in the front rank and would solve the great problem of public health. Modern public health administration is intimately dependent upon reliable mortality statistics, and for this reason it behooves every physician who is interested in the welfare of the people to exert an active influence to bring about a correct record of the births and deaths of his community.

It should be our aim to eliminate the ignorant midwife and allow only those women to act as midwives who can stand an examination as to cleanliness and who have some intelligence and idea as to the anatomy of the genital tract. Many abnormal conditions are not noticed for the reason that no accurate record has been kept. The fight against tuberculosis in North Carolina is yet in its infancy, and while great advancements have been made within recent years we have not reached that high standard which should have been reached.

The General Assembly of North Carolina are to be congratulated on appropriating $200,000, small sum though it was, for maintenance and improvements which are to be made at Sanatorium, under the wisdom of that able Superintendent, Dr. L. B. McBrayer. It is to be hoped that in the near future we shall have an institution in our State which will compare favorably with any institution of its kind in this country.

The ignorance concerning this great white plague that exists among all walks of life is appalling. It is a serious question—saving of the lives of humanity—which to a great degree is being overlooked by many of our own profession. We realize that it is a hard undertaking to change public opinion, which has been handed down from generation to generation, especially when it has been well rooted in the minds of illiterate people. We shall not only be unjust to ourselves but to our

families, as well as to the people of our localities, if we do not instruct them as to the necessary precautions to be taken in the prevention of this dreaded disease.

Coming to the milk problem, which holds a very important place in public health, we well know that in many localities it has been sadly neglected. It is a lamentable fact that many mothers are unable to nurse their infants. We also know that unless the milk supply is pure and free from contamination many of these unfortunate infants will be sacrificed. It is the duty of the medical profession to do a great work in seeing after the dairies in each locality, that they are free from disease and kept in a sanitary condition.

We now come to a most important question which affects both country and town, the disposal of waste products from human sources. The State Board of Health of North Carolina is to be commended for securing an act by the General Assembly which prohibits the maintenance of anything other than a sanitary privy within three hundred yards of any other residence; this will do the work for small towns and the suburbs of larger cities. This will be maintained by inspectors, and failure of owners to comply with these rules and regulations will mean drastic punishment. Incidentally, it might be said that the appropriation for rural sanitation work was nearly doubled, and the appropriation for school inspection, etc., was increased from ten thousand to fifty thousand dollars, the money to be paid over from the public school funds of the State.

The most important act of the General Assembly and the one which is really the foundation of public health in rural sections is the provision requiring adequate sanitary equipment for public schools, which went into effect the 10th day of March, requiring the county board of education to provide before the opening of school in the fall in North Carolina two sanitary privies, one for boys and one for girls, under rules and regulations to be made by the North Carolina State Board of Health and approved by the State Superintendent of Public Instruction.

The county boards of education are required to provide before the opening of schools this fall 25 per cent of all the schools with two sanitary privies, one for each sex. Then 25 per cent of them must be provided next year, the same the following year, and all the rest of them the next year. The county superintendent of public instruction and county board of education are charged with the execution of the provisions of this act, which subjects them both to a misdemeanor, punishable by a fine or imprisonment, upon failure to comply with the law. It also requires the school district committeemen to be charged with the proper upkeep of these privies, and their failure to do so is

considered a misdemeanor, subject to a fine or imprisonment. This is by far the most important legislation touching upon public health measures that has yet been placed as law upon the statute books of North Carolina. We now also have an act which provides for the physical examination of public school teachers to prevent them from infecting their pupils with tuberculosis. The examination of each teacher is to be made by the county health officer free of charge, and he or she is to be furnished with certificate, showing that each is free from tuberculosis, before being employed by the school committeemen as a teacher.

It seems that we are neglecting a very important matter and it is to be hoped that the medical profession will take a stand for the protection of our coming generation by endorsing and assisting in the execution of the recent federal revenue act passed by the last Congress in regard to child labor. One of the strong features of the act prohibits children from starting to work before six o'clock in the morning or working later than six in the evening. This eliminates all night work. It carries the eight-hour provision and places a tax of ten per cent on the net profits of all goods manufactured by children from fourteen to sixteen years old who work over 48 hours in any one week.

With the light we have gained it is our duty to promote the general welfare of the communities in which we live by instructing them. Everything pertaining to preventive medicine is of vital interest to the public, as there is no science that should have a closer relation to the human race than preventive medicine, which is making rapid strides and bids fair for still greater discoveries for the well-being of mankind. Preventive medicine has lagged behind more than other branches of medicine for the reason that the instructors have been poorly enlightened. Physicians must be educated for the purpose of teaching the people and through this channel we shall be in a position to fight the preventable diseases.

It has been my experience and observation that too little is known about hygiene and sanitation and far less taught in the schools, hence the inability of the medical profession to properly encounter and meet with success in handling epidemics of contagious diseases. Hygiene deals with the causes and prevention of diseases in their relation to the preservation of health, and while it is founded on medical experience, and advanced by medical research, it stands out clear and defined from the ordinary run of the science and art of medicine, which deals with the cure of disease. Hygiene is preventive medicine, since it seeks to remove the causes on which the diseases that affect mankind depend. Its aim is to prevent disease by the due appreciation of the causes which

induce a departure from the normal type of healthy life. Hygiene is of two kinds: First, that which relates to the person, and second, that which relates to the public health. It would be proper to first take up the first kind, for if personal hygiene is properly taught and carried out there will be practically no reason or cause for insanitary conditions.

As very little is known among the masses of people regarding hygiene and sanitation, the best method, in my opinion, of impressing upon the people the advantages of proper sanitation and hygiene is to require in all public schools of the State the teaching of proper sanitation and its beneficial effects upon the body and mind of the student as well as in its relation to the health of the community. Under the head of the teaching of personal and public hygiene I would also suggest that in connection therewith there be proper instruction in calisthenic or setting-up exercises, which tend to the proper development of the physical as well as the mental development of man, for without the proper physical and mental development we do not have the perfect man.

To my surprise the army records show that 29 per cent of the men between the ages of 21 and 30 who were examined by draft boards were rejected upon the ground of being physically unfit. If these men had received instruction in their childhood as to the proper kind of exercises to take there would have been far fewer rejections for physical unfitness.

In those schools where exercises were first given they started with the wrong theory. They let themselves be deceived into thinking that the physically fit man is the man with the bulging muscles, but experience has taught us differently. Any army man will tell you that the muscle-heavy man cannot stand the strain of war as well as another man. Why? Because his heart has paid the price for his muscles. The muscular giant and the physically fit man are not the same. Any system of exercises, to be of benefit, must be that which will add strength to and make supple the vital muscles, the muscles of the trunk.

As the duties of the county health officer are numerous and practically all of his time occupied in looking after the general health of his county, I would suggest that he be empowered to select as his assistant a graduate nurse, thoroughly qualified, of his choosing, to give her time to looking after the personal hygiene of all public school children and seeing to the proper teaching of hygiene in the schools, together with advising as to the right kind of exercises to take.

I would further suggest that the opinion of the county health officer and his assistant be paramount to that of the Superintendent of Public Instruction in regard to all matters relating to the proper hygiene and sanitation affecting all public schools and school children.

The benefit to be derived from taking the proper kind of exercises is too well known to be enumerated here. At the outbreak of the war very little was known in regard to the benefit to be derived from the taking of setting-up exercises outside of some of our army schools, but when the armistice was declared we found to our amazement that every one of the something over four million soldiers was each morning required to take setting-up exercises. Why? Because they exercised and developed those muscles of the body which tend to relieve indigestion, strengthen the wind, prevent constipation and other conditions brought on by a lack of sufficient exercise, and development of the organic muscles. It is what lies under the ribs rather than what lies over them that is of value. The real essential is the engine, the parts under the hood—the lungs, heart, and trunk.

The advance of medical science, together with the spread of education, has tended powerfully to awaken national endeavor in matters both of personal and public hygiene.

Happily the people at large are beginning at length to perceive and to act the great truth, that only by their personal education in hygiene, and by their knowledge and observation in health laws, can they secure the length of days which of old it was declared Wisdom bore in her right hand.

I appeal to you in the name of public health, in the name of the suffering and dying, to stand by the physicians who are engaged in this great and noble work.

INFLUENZA EXPERIENCE GAINED FROM EPIDEMIC IN ASHEVILLE

Dr. C. V. Reynolds, Health Officer, Asheville

In discussing influenza this morning, I am aware that it is retrospective, but in recalling our experience of a few weeks ago we realize our utter helplessness in combating a disease that was causing such devastation. It will not be amiss to spend a few minutes in reviewing as an example Asheville's epidemic, and draw conclusions therefrom.

Our knowledge of pandemics of this disease faithfully recorded—one in 1833 to 1835, the second, 1836 to 1837, the third 1847 to 1848, a fourth, 1889 to 1890—afforded us but little help when we were confronted with the recent epidemic.

Notwithstanding the fact that we were forewarned in regard to the fast approaching epidemic and that it was assuming vast proportions,

coming to us as fast as travel could bring it, we stood awaiting our fate in almost utter helplessness.

On September the 28th the first recognized case of influenza appeared as such in Asheville. A meeting of the Buncombe County Medical Society was immediately called, at which time the situation was thoroughly discussed, and a request was made that all cases with names and addresses should be reported promptly in order that a true census should be at hand, so that we could cope with the situation intelligently.

I am sorry to say, yet I do it unhesitatingly, that very few reports were sent to the health department. This seeming negligence, I will not say indifference, due possibly to stress of time and overwork, necessitated the secretary to telephone each doctor daily for the number of cases on hand and all new cases that had developed during the last twenty-four hours.

On October the 8th one hundred and fifteen new cases were occurring per day. At this time we began making a graphic chart which was continued throughout the period of the epidemic. By this method and by the information obtained from the school nurses, the district nurse, the Metropolitan nurse, and the coöperation of the citizens, we obtained to an accurate degree the number of cases occurring during the entire epidemic.

PRECAUTIONS TAKEN

Immediately upon the appearance of influenza handbills were printed setting forth symptoms and stating precautions necessary to be taken. These were distributed to every house and all places of business in the city within twenty-four hours. Churches, schools, moving pictures and all places of amusement were closed, and all social, business and fraternal gatherings were forbidden. All clinical cases were isolated.

QUARANTINE

Legal quarantine as an effectual measure in the control of the influenza epidemic is impracticable for the following reasons: First, it would have been an overemphasis for a minimum good. Second, an attempt at quarantine would have been to place restrictions around certain sickness, leaving the ambulatory cases, missed cases, unreported cases, and cases without physicians, all of which constituted the greatest menace, at large.

There were 175,000 reported cases of influenza in New York city; yet in the weekly bulletin of the city of New York it was stated by the health department that at least half a million of our people had the disease. There were some who thought it was nearer a million than a half million.

One case subject to legal quarantine—good. Eight cases running at large and sources of infection.

Second, legal quarantine was a false idea of protection. The general public could be led to believe that a legal system of quarantine would protect them from all sources of danger, and that they could with safety go and come and intermingle. This procedure would lead the public to a misconception of the real truth.

DISADVANTAGES ARISING FROM AN ATTEMPTED QUARANTINE

First, the temptation on the part of the patient and his family to evade being cut off from society and business during the progress of the disease. Second, it is regretable to say that there would have been a temptation on the part of a few physicians to withhold reports of cases on account of the objection of families to quarantine. Third, there would have been a large number of cases, by reason of failure to consult medical advice, ambulatory cases, and missed cases, still remaining as a menace to the public health.

If some wise man had solved this problem and then perfected an organization with which to enforce a legal quarantine, it might have proven effectual.

The ban placed on meetings, social gatherings, etc., could not with safety be removed if a legal quarantine had been established, as it has been shown above that the quarantine could control only a few sources of infection.

From the beginning of the epidemic in the city of Asheville isolation and quarantine were insisted upon, and the hearty coöperation of the physicians, nurses, and families was requested in carrying out this procedure, emphasizing at all times the virulency of the infection.

The height of the wave was reached on October 19th, when two hundred and twelve cases were reported for the day.

Under the auspices of the American Red Cross, on October 13th there was established in the city hall, headquarters for a relief committee whose duty it was to look after the securing of doctors, nurses and workers, and investigating the calls for food and assistance. On October 14th an emergency kitchen was opened to furnish food for those in distress. On October 19th two emergency hospitals were opened for white and colored. All work except the regular nurses and civilian orderlies was contributed voluntarily, and here I shall pause long enough to pay special tribute to the self-sacrifice and heroic work of those noble women who went in at the risk of their lives and under the guidance of the regular nurses rendered invaluable service in nursing the sick.

With the hearty coöperation of the press and our good citizens, we were able to reduce the number of cases to seventy-seven on October 27th, gradually decreasing until November 11th, when eleven cases were reported for several days.

This time of patriotic enthusiasm over the signing of the armistice caused a most natural desire to celebrate, and plans were made for an elaborate demonstration. A meeting of influential citizens was called and the health department made an appeal which prohibited any authorized demonstration. Nevertheless crowds assembled, resulting in a flare-up which reached its height on November 14th, when there were fifty-five cases. Again on November 21st we were having ten cases a day, continuing through a period of incubation when churches, schools and movies were open. Three days thereafter a recrudesence occurred, resulting in thirty-five cases per day until December 5th. On December 6th, without the knowledge or consent of the board of health, a mass meeting was held at the auditorium, resulting in an increased number of cases to thirty per day, which was gradually reduced to five per day, when the Christmas crowds caused another increase in the number of cases, twenty-three per day. The number of cases was then somewhat reduced until New Year's celebrations again sent the number per day up to thirty, gradually reduced again until January 7th, when general unrest and newspaper propaganda caused the citizens to rebel under what they deemed unnecessary sacrifices, causing a general relaxation of precautions, which resulted in a general flare-up, reaching its height of seventy-six cases on the 21st of January, when restrictions were again enforced, control being secured and the epidemic subsiding until on February 7th normal conditions were restored.

Summarizing, the cases reported were:

Whites 3,888
Colored 886
Total number of cases reported, 4,744

Deaths:

Local—	
Whites	87
Colored	14
Total	101
Imported—	
Whites	25
Colored	2
Total	27

Grand total number deaths 127, population 30,000

15.8 per cent of population stricken
3.3 per cent mortality.

Long before the report of the special committee of the American Public Health Association, which met in Chicago, December 9 to 12, 1918, was published, most of us had taken and were using at that time the precautionary measures in regard to the prevention and treatment of the disease advocated by them.

We realize that we have been dealing with a disease of unknown origin; we realize again that there is no known laboratory method by which it can be determined when a person is suffering from influenza or when he ceases to be a carrier of the disease. We realize that there is no known specific for the treatment of influenza; we realize that vaccine used as a prophylaxis is yet in the experimental stage and should not be used unless the patient to whom it is being administered is advised that it is uncertain in its protection against influenza.

We realize that influenza *per se* is not fatal, but the complications, pneumonias, caused the fatalities. We have learned through this epidemic that the pneumonias give us the greatest immediate concern and just ahead we must carefully consider with painstaking individualization the grave possibility of the greatest fear as a result from influenza —the awakening of a latent tuberculosis into an active clinical type. The lesson learned should teach us in the future not to make merely a diagnosis of influenza, but let the influenza be handled with grave suspicion until it proves itself trustworthy, lest it should have as its companion the pneumococci or the power to awaken a more deadly one, the bacillus of tuberculosis.

Look out for the pneumonias before they overpower your patient; intelligently analyze your patient and gain sufficient facts to protect him if possible from developing a progressive type of tuberculosis.

Green says, "The true end and aim of modern scientific diagnosis must be the earliest possible recognition of any disease, acute or chronic, and the promptest feasible institution of an effective therapy, whether this consists merely in wise instruction, in a conservative and retardant regimen, adequate supervision and control, or involves the immediate and direct use of drugs."

The history of previous epidemics teaches us that we may expect a recurrence of the disease in epidemic form next year and possibly the year after, the principal deaths being due to pneumonia, bronchitis, and other respiratory diseases.

If the influenza, as we expect, should be repeated next year, what is our best method of procedure?

We have learned that the most potent factor in the spread of contagion is from the individual infected. It is individual forgetfulness of his fellowman, which may not be a malicious act, but the result of a

brain not controlled and used by the will, a brain that obeys the selfish will to indulge individual selfishness, or gratifying a selfish desire at any cost, even risking self and endangering others that a selfish desire may be obtained.

We have learned that careless expectoration, coughing or sneezing are the chief methods of transferring disease; then we should have laws making it a misdemeanor, not only for careless expectorating but for coughing and sneezing without taking proper precautions to protect those nearby. It is an insult to spit into another's face; it should be considered an injury added to insult to cough or sneeze into another's face.

The wonderful work of the American Public Health Masters has been recognized. While these eminent physicians frankly admit that they have found no specific for influenza, they testify to the efficacy of the pneumococcic vaccine as a protection against the pneumonias, one, two and three and possibly four, and advocate its use.

It behooves us, then, to use every effort to wield this known weapon in preventing the fatal complications.

DISCUSSION

Dr. C. E. Low, Health Officer, Wilmington: This paper is certainly worth discussing, and while I am not in agreement with some of the points made by Dr. Reynolds, the facts are well brought out in the paper in support of his belief in rigid closing.

Personally, I do not believe—and this is a very heterodox statement for a health officer to make—I do not believe that any closing effort influenced the control of influenza as to the total number of cases which occurred. I do think it had the effect of postponing the rapidity of the epidemic's spread, and thus delayed the occurrence for a considerable time of the number of cases that were later in the State.

I filed the reports and many of the bulletins coming from the Federal bureaus and many of the larger cities, and a study of the data indicates that some of the best mortality records amongst the larger cities were made by cities which adopted no closing control whatever. There also is shown a peculiar tendency for cyclical rise and decline in death rates, as Dr. Reynolds has illustrated in his morbidity chart, in these periods of week or ten day intervals, especially during the latter part of the epidemic. Independent of methods of control you will find, regarding the death rate, that there was considerable variation between cities. There was undoubtedly considerable variation in the severity of the type of the disease in different localities, but, on the whole, I consider the death rate a better indication of the number of cases which occurred than any morbidity statistics which were collected.

There is no doubt, however, that the methods of restriction had much to do with postponing of the epidemic so that we could better handle the cases that occurred through organization of forces for medical treatment, nursing, feeding, ambulance calls and emergency hospitals, and service in other ways.

As far as I am able to appreciate the situation from observation of my own city and from participation in the meeting of the American Public Health Association in Chicago, the whole duty of the health department is to build rapidly an efficient relief organization and conduct an extensive campaign of education for teaching the individual personal prophylaxis.

Those of us who attended the American Public Health Association appreciated that there are no measures, whether they be rigid closing of public assemblages, masking, therapeutic or otherwise, known to control the epidemic disease which lately proved such a scourge. This is the very point I am making with regard to the argument for rigid closing presented in the paper. As an illustration, let us consider the facts presented at Chicago concerning the two cities of Buffalo and Cleveland—cities with very nearly identical conditions; Cleveland a little larger; both northern industrial cities situated in practically the same latitude and having about the same climatic conditions; both on the Great Lakes, as you know, and as far as the classification of the population went probably nearly identical. Buffalo did everything that could be done in the world, having a large and all but perfectly organized department; having the advantage of the early knowledge of the epidemic conditions prevailing in New York, Boston and other eastern cities for several days before the epidemic reached Buffalo, closed everything up tight; did everything in the way of isolation that could be done under the circumstances; secured as complete return of morbidity reports as was possible—and I use the word "possible" advisedly, for I do not believe that any city got anything like complete reports. There were no complete records anywhere because under the stress of the conditions prevailing doctors' records were not complete. I know that in my own city the reported cases represented a very small proportion of the cases occurring, and this knowledge is based on a house-to-house canvass made to ascertain the number of cases which had occurred, long before the epidemic was past. For several days I kept an office man at the telephone collecting local physicians' reports, which records were not as satisfactory as they might have been, and even then I had to give up the effort because the result was not adequate. I believe, too, that panic had a very great influence on morbidity reports, and I base this con-

clusion on our experience during a sharp recrudescence of the epidemic in January, after restrictions had been removed and conditions were approaching normal. Some alarmists started the report that we had a thousand new cases in the city. At that time some of the physicians of the city who thought restrictions had been removed too quickly began to report considerable numbers of cases; our nurses, however, reported finding no such increase of cases, of what might reasonably be considered true influenza, as to agree with the reports; and when the board decided not to impose restrictive measures again, both the panic and the greatly increased number of reports suddenly ceased.

I trust you will pardon this long digression concerning my personal views on the unreliability of influenza morbidity reports. However, I think reference to expert governmental statisticians will reflect my views in the matter.

Now let us return to the comparison of results obtained under very rigid restrictions and under very moderate ones. In addition to the restrictive measures I have already outlined, Buffalo went through a big labor upheaval in the form of a street car strike which lasted for two weeks during the height of the epidemic, and everybody who went out went by private conveyance or on foot. Cleveland, we are told, did not impose such rigid restrictive measures. As far as known they should have had at least the same number of cases in proportion to their population, and yet the death rate in Cleveland was a little lower than in Buffalo. I cite this instance to show the doubtful utility of restrictive measures, although it is difficult to prove anything by simply presenting statistics for one city.

I am not knocking the paper; it appears from the charts presented that closing had an effect on the incidence curve. Personally, I do not believe that anything I did in closing measures gave us any permanent control, because the disease is not greatly spread by the acutely ill, but rather by the carrier who thinks he has nothing but a cold. This carrier factor is present everywhere. If he comes in contact with crowds the epidemic spreads rapidly; if he comes in contact with small groups, or individuals, the epidemic spreads more slowly. In any event the carrier factor will ultimately infect all those who are not immune.

The carrier factor will spread the disease despite quarantine of the acutely ill, and in spite of closing ordinances and everything else. Our hope of control must lie in the education of our people about careless coughing, sneezing, the use of the common cup or utensil, and a reasonable regard for others when infected with a common cold or what not.

Dr. Reynolds, closing the discussion: There are a great many interesting points which should be taken up and discussed, but in order to expedite matters I will close by thanking the members for their extensive discussions and interesting remarks made relative to the recent influenza epidemic.

MILK FOR THE SMALL TOWN

L. M. McCormick, Asheville

I am not going to discuss in this paper those problems that are treated in the textbooks on "Milk Inspection and Production," and so will pass up such problems as the "Detection of the Dishonest Dealer," the "Delusion of Watered Milk," "Preservatives," etc., and only present a few remarks on "Experiences of helping the farmer to produce a satisfactory milk." For no matter what the size of the dairy, certain fundamental principles and care must be exercised to produce a safe milk, and the inspector who can give due weight to simplifying the journey of the milk from the cow to the table serves his employer best.

I believe that a working knowledge of farm life is the foundation of an efficient inspector. No matter how sincere and thorough the city man, doctor or layman, may be, unless he knows from actual experience the problems of the farmer dairyman, the grind of a routine that knows no holidays or Sundays, the fun of getting up every morning long before daylight, waking up the cows, getting them milked, the milk cooled, bottled, and loaded into the wagon, the drive into town, the delivering of the milk in all the kinds of weather our year holds, and knowing them can help the dairymen to see the advantages of good methods, he will fail in his work, for some of his criticism will be impractical and will nullify any good advice he may be able to give. On the other hand, he ought to have enough laboratory training to be well founded in the essentials of bacteriology, sterilization and hygiene, else he will not be able to give reasons for what will seem to the producer arbitrary regulations.

Why object to dust and cobwebs and not notice a wet or even sloppy floor in the milk room? Why should the inspector object to rinsing out the milking utensils in beautiful clear spring water just because a few hogpens are above the spring on the hillside? All directions must be accompanied with the reason why, in terms which reach the dairymen, or they perish.

And the inspector should study each producer's problems concretely. Arbitrary rulings are likely to get him into trouble. His first aim should be to simplify the dairymen's work rather than to complicate

it. A concrete floor is required because it is a time saver in keeping the stables clean, and pays for itself very quickly in handling the barn work. A proper water supply, coolers, boilers, and utensils are milk, time and money savers, and are demanded by Madam City as necessary to enable Mr. Farmer to give her a good article, without making her pay for such wasted time, milk and profits as poor equipment involves.

Dairy score cards have not been the hoped-for advantage to me; there is no score allowed for the man who runs the dairy, and the best equipment and theoretical methods will not produce good milk, unless they are intelligently used. No hard and fast rules and regulations can take the place of common sense, plus a thorough understanding of the results sought. For instance, the Gurley milk pail was the last word ten years ago. This pail was made with a large round open top, fitted with a rim to hold in place a strainer onto which the milk was drawn from the cow and strained as it entered the pail. Result—any hairs or other trash falling onto the strainer cloth was thoroughly washed by the streams of milk falling on it, dissolved if soluble and the washings carried into the pail. This did not appeal to the intelligent farmer, although many first-class dairies at the time were equipped with them.

Straining milk in any stage of its production is a practice that ought to be placed in the same category as that of planting crops in or out of the light of the moon. It is a superficial, if not a deceptive and false safeguard as regards the quality of the milk. While the practice is too deep-rooted in the customs of the dairymen to be eliminated, we ignore and discourage it as much as possible.

Keep the milk clean from the start—you cannot wash it if it is once soiled, we tell the dairymen. If cow dung once gets into the milk, its effects on the flavor and quality are as impossible to remove by straining as the effects of putting coffee into the pot. You may be able to strain out the grounds, but the color and flavor stay just the same. No strainer that will allow milk to pass will catch the bacteria, for the bacteria have about the same relative size to milk cells as fine meal has to corn cobs. You would not expect to separate meal from shelled corn by sifting the mixture through a strainer that would separate the corn from the cobs and husks. So straining is not forbidden in order to remove stray hairs, chaff, etc., but it should be ignored as a safeguard, and condemned as an excuse for visible sediment.

This visible sediment, found when a bottle of milk is examined through the bottom after standing for an hour or two, is a fairly good indicator of care in handling milk before it is bottled, for it is almost impossible to so strain or even filter milk as to prevent settlings from

showing up, if dirt has been allowed to fall into the milk; and if such milk is condemned when found, on its own evidence, the dairyman has no right to be peeved. Our practice is to gently insert under the bottle and cap a small slip of blotting paper which has been saturated with a strong solution of methyline blue. This turns the milk a pea green and makes it awkward to deliver, but doesn't destroy its hog-feeding value. One or two experiences with colored milk will stimulate the dairymen to efforts of cleanliness which he had considered impractical. Our solution for the strainer problem was found in the North Milking Hod, manufactured by the Champion Cooler Company, Cortland, N. Y. This is the only pail that I have seen that combined safety of contents with practical cleanliness and simplicity of operation. It is a covered pail designed by Dr. C. E. North, one of the pioneers in the certified milk work of the country, to meet the factor in the problem of getting the milk away from the cow with the least possible danger of contamination, and in practical operation, after five years of observation, is so satisfactory that I feel justified in saying that it solves more difficulties in safeguarding milk than any other one thing I know. This pail is really covered, the shield extending over the whole top and the milk entering and leaving the pail through a circular opening about five inches in diameter, in the side near the top. The shape of the pail and shield are so designed that all parts of the interior can be seen and reached for cleansing purposes, and the opening is so made that it can be closed with a flange cover, and the whole sterilized by boiling a little water in the pail itself. Simple, when you know how, like so many other practical solutions of knotty problems, and you wonder why you never thought of it before. With this pail intelligently used, many of the barn problems, from kicking cows and switching tails to draft-carried dust, can be controlled. The opening is up and down when in use, so falling dust cannot enter, and the milk has a minimum distance to travel through the air to the safety of the pail, where it is thoroughly protected until it is poured out for cooling. If properly used, there is no reason for straining milk gathered in this pail. A trick of milking sidewise instead of down is easily acquired and, once learned, is just as comfortable for the milker. It was this pail that enabled an old, unprepossessing looking farmer to surprise the bacteriologist at the Kenilworth Hospital by submitting milk that compared favorably with the Biltmore product, by bacterial count.

The bacterial count is almost as indispensable in maintaining a clean milk supply, where many dairies are to be controlled, as are the Babcock tester and lactometer to prevent fraud by watering. The bacterial count enables the inspector to keep a close check on the efficiency of the

methods used by the producer. And while the information obtained does not come in time to condemn the bad sample, it can be used to locate bad methods and to enable the inspector to find cause. To be useful the bacterial count must, in routine work, be interpreted with the history of the milk—a high count can always be expected with old milk or milk that has not been kept cold. As a matter of fact a milk giving a count running into the millions per c.c. may be much less dangerous than one with a very low count, but between the two, the dairy obtaining a consistently low bacterial count will be found, on inspection, to have good methods of handling its products in practical use.

Madam City wants a good article and is willing to pay a fair price, but is not willing to be overcharged. She used to get milk from the neighbors at five cents a quart, why pay more now? When she personally visits the dairy barn, she doesn't understand the problems, she may be charmed by the vineclad but dangerous spring house and shocked by the untidy straw bedding in the stables. Mr. Farmer is equally honest. He wouldn't sell a drop of milk that he wouldn't drink himself, but he has always liked to watch the milk foam in the pail and see the manure pile, that is to produce fertilizer on his fields, grow under the cows' feet. He is so accustomed to the buzzing of the flies that it wouldn't seem like good old summertime if they were not also here, and he likes the pig pens, horse stalls and cow barns to be on friendly terms. It is up to the inspector to help them both.

FUNDAMENTAL PRINCIPLES OF PUBLIC HEALTH NURSING.

Miss Rose M. Ehrenfeld
State Director of Public Health Nursing, Sanatorium

The war has given a sudden impetus to public health work and everybody is interested at the present time; not only the medical and nursing professions but all—interested in health as a factor in social betterment. The dependence of armies upon civilian population has made clear the importance of health of the rank and file; and the democratic ideals for which we fought have made it imperative that opportunity for health as well as other opportunities be made equal to all. One of the equalizing factors and latest developments in the national health movement is the public health nurse.

"We know her as a woman doing any form of social work, where her professional training is one of the requirements." "We are all familiar with the visiting nurse who comes in response to our immediate need for nursing care; the infant welfare nurse, whose work is

confined to the care of the very young; the social service and industrial nurse, who are especially interested in the social well being of an individual or group; and the school nurse, who is employed to work among the school children of a community. The public health nurse is all of these, or any one of them. She is a composite of them, bearing the qualities of all and may limit her work to any one of these activities or combine them all as a general community nurse."

In spite of strides which preventive medicine and the study of public health have made in recent times, the practical application of such principles in the homes of the great masses of people suffers a constant check through the lack of an adequate number of trained women.

The work of public health nurses in devastated countries and in cantonment zones has illustrated the great possibilities of this service and admits (1) no better way to speak to the people than through the nurse; (2) no better point of attack than the homes into which she goes; (3) and no greater factor in the spread of communicable diseases than the people with whom she comes in contact. For the first time in history, the federal government has taken cognizance of this particular branch of nursing and the United States Public Health Service issued a leaflet thereon, used in connection with National Health Sunday, and distributed it from pulpits, and their first reconstruction bill before Congress included community nursing.

"At the bottom of any type of activity which springs more or less spontaneously into existence, there will be found certain principles which are adopted as fundamentals, and a number of them date back to 1859, when William Rathbone, with the far-seeing assistance of Florence Nightingale, founded the first district nursing association in Liverpool. He appreciated at that time the necessity of employing only well trained women and at a time when there were none to be had. Although the development has been sporadic for the last twenty years, each year, as opportunity lays a greater burden of responsibility upon the public health nurse, more emphasis is being placed upon this necessity. The much quoted bishop who thanked God that there were second rate souls to be saved by second rate persons, has his prototype in some people who feel somewhat the same way about sickness. Indeed, a noble lord, when the registration bill was under discussion in England, arose and assured the House that there were two kinds of nurses required; one for the people who had important operations by eminent surgeons, and another to nurse the ordinary ailments of the poor. Time has changed this attitude, and for public health nursing, today, in the usually accepted meaning of that term—whether in city, town or country—there is but one type and that the woman who has the knowledge,

experience, and discipline gained by training in an accredited hospital, and additional training or equivalent experience in this specialized field." And the standard today is not "poor nurses for poor people" but adequate nursing service for the masses according to need and not according to income. Hence *our first fundamental principle, "Employment of only well trained women for public health work"* is now (as it was half a century ago) one of the foundation stones.

"Next, in considering principles, stress was laid on danger of becoming what the English term 'almoners'—dispensers of material relief. This was rarely appreciated as important by newly organized associations but is universally felt to be more vital as experience progresses. As early as 1887 Queen's Institute in England complied with a general rule forbidding nurses to be almoners." No one is expected to go peacefully on caring for patients suffering for necessities of life, but to provide such through intelligent coöperation with the proper relief organizations. First: For the reason that she is not expected to do for her patients work that properly belongs to another organization; but to give skilled nursing, teach personal hygiene and prevention of disease and demonstrate, by careful records of work done, that results attained have been worth the time, labor and money expended. Second: "In the complexity of our modern life, giving is a most difficult thing and requires special social training if it is to be done with the minimum of danger to the recipient." Third: "Even were a nurse as well trained a social worker as she is a nurse and her work allowed time for the exercise of both duties, it would still be unwise to combine the two because it has invariably been proven that her position is weakened if her patients look to her for material relief, and a large part of her strength in the home comes from the simple way in which she enters it, as one woman possessed of working skill and knowledge who comes to place them at the disposal of another. Her value is found first in her nursing ability and later in her own personality on which more and more the patient and his family learn to lean." Hence our *second fundamental, "That the nurse should not be a distributor of material relief,"* and the National Organization for Public Health Nursing stands ready for consultation with any community on the separation of health work from charities, and the introduction of a fee system.

In 1849 William Rathbone made a point of noninterference *with religious views* of his patients. While a present day rule, we have not said enough when we say a nurse should not interfere, as this is merely negative. From her position in the home, she can often give positive help in strengthening already existing church connections, regardless of what form of faith.

By "professional etiquette—a principle of the early days—is meant the relation of medical and nursing profession to public health work and to each other. Public health nursing has had in the medical profession its greatest friend. Men whose minds have been steadily fixed on the welfare of the people (not on circumstances affecting themselves) have from the first given a helping hand, and to their fine loyalty we attribute the development of our work." Hence insistence on rigid observation of the well understood rules of so-called professional etiquette—our *fourth essential.*

"*The importance of accurate records,* which may now be accounted the fifth, has not always been emphasized. In the early visiting associations (doing otherwise excellent work) a very imperfect system of record keeping existed. This is explainable by the fact that in the beginning, alleviative rather than preventive work was considered the function of the public health nurse, and time spent away from bedside of patients was looked upon as of doubtful value. If records were to be kept, it must be 'between times'—a period nonexisting with the average nurse. However, with increasing demand for information, it became evident that public health nurses had unusual opportunity for collecting valuable data. The tendency in every branch of work was toward greater emphasis on accuracy, and vague statements founded on general impressions carried less and less weight. Supporters of the work demanded figures as to results and asked permission to consult records. On the whole the nurse has responded more slowly to this demand than to any other made upon her; but gradually she is realizing that not only accurate but complete and standardized records are a vital part of her work and that by keeping them she is perhaps rendering one of her most valuable services to the cause of public health in accumulating illness statistics." That suitable accurate records may be kept with uniformity, for convenience in compiling statistics, we recommend the standard day sheet, case and history cards of the National Organization unless placed by and working under the Red Cross, when their standard records are used.

"Another essential, of which, however, we do not hear so much in the early days of the movement, is *coöperation.* Everywhere the public health nurse stands as one of the most valuable coöperating agents in the community." In fact, "special training" is advocated to fit her for the many problems of applied economics and sociology she has to meet. Coöperation between all agencies is now recognized as of primary importance.

"*The fundamental principle of visiting nurse associations* having to do with payment, may be divided into two classes. First: That nurs-

ing care should be given free to those who are unable to pay. Second, and of no less importance: Those who can afford to do so shall pay according to their means. The first part of this principle is as old as the first visiting association—the second is a much later development. It is unnecessary that two organizations should be established in any community—one to care for those who can pay and one for those who cannot." The National Organization stands ready for consultation on reorganizing and coördinating of all public health nursing in a town, under a central committee. "The ideal method of amalgamation under such conditions is the agreement on the part of those already employing nurses to place them on the staff of a new association, there to work in whatever field may be designated by the supporting agency, but under supervision of the superintendent of the association, with a common uniform and conformity to a common general plan of work. If this can be accomplished, large concessions may well be made to the special wishes of the affiliated bodies as to methods of administration, local headquarters, etc., and ample representation should be given them on the board of managers and all important committees."

"It has sometimes been felt that the administration of a visiting nurse association should rest in the hands of women because nursing is essentially a woman's work. This may have been true in the earlier days of the movement when 'care of the sick' alone constituted the duty of the nurse. Now, when the work is no longer primarily curative, but rather educational, preventive, and so much more complex, we can ill afford to do without the judgment and experience of both men and women. The point of view is inevitably different and both angles are valuable"—for which reason we recommend a mixed board and liberal representation, namely, one each from board of health, board of education, civic club, chamber of commerce, parent teacher's association, Red Cross chapter and other local organizations. This stamps the work as a community enterprise; goes for a stronger organization as to volume and effectiveness; permits of adequate supervision; offers a larger scope of activity and unrestricted opportunity for future permanent developments (without duplicating territory).

For too long has our best care been limited to the rich and to the very poor of the large cities, and it is becoming increasingly evident that, if the public health nursing movement is to acquire its fullest development, the sick of moderate means must be cared for at a cost which will not leave them financially crippled upon recovery. Though the nurse will give free care to those who need it, the stigma of "charity nurse" must never be allowed to attach itself to her and, while considering the necessity of such work among the very poor, the desirability of service for

all those of moderate means should receive emphasis. As public health is a community problem, why not place the responsibility where it rightfully belongs—on the community? Create one nursing organization, district the town; include all nursing activities; reaching the masses (including pay and fee cases) knowing not the bounds of age, race or color and limited only by local geography and facilities for transportation.

"Public health nursing in all its branches requires for its performance not only a body in good physical condition but a spirit fresh enough to be capable of enthusiasm—that mountain-moving attribute so essential for accomplishment"; and the *next principle, "limitation of hours of work for the nurse"* must be strictly insisted upon in order that good work may be done, continued day after day, and she herself kept physically well.

The last and very important principle, that of general supervision of isolated nursing work, is recommended to insure maintenance of professional standards of technique in public health nursing and methods of administration.

"This classification of fundamentals is by no means final. Each year brings developments undreamed of. The almost phenomenal increase of public health nurses is due to the fact that she has met a need. Much more elaborate machinery is now required than in days when her duties were fewer and simpler, but it must be remembered that all such machinery or organization—local, national or international—is but a means to an end. The real object of it all is the individual. Numbers of them for descriptive purposes may be classed in groups." First: School children for whom it is our desire that compulsory education shall no longer mean *compulsory illness* (even in remote sections) and for whom we desire (in addition to remedying their defects) systematic health educational work in primary grades; a record of physical progress on the reverse of their school record card, and that such be made one of the factors to be considered in the passing from grade to grade. Second: Tuberculosis patients for whom we desire medical and nursing supervision within the reach of all; protection of children from adult human infection; preventoria and open air schools for children. Third: Babies, in whose interest we desire carried into every township in the State (by county public health nurses) prenatal instruction and adequate provision for postnatal care of mothers; legislation covering registration, licensing and supervision of midwives. Fourth: Children of pre-school age (called the neglected age) in whose behalf we desire nutrition classes and health study clubs for mothers. Fifth: Industrial workers, in whose environment, plane of living and health conser-

vation we are interested; here frequently finding the snuffbrush, the only toothbrush known in the home, the patent "chill tonic" on one end of the mantle and the "consumption cure" and paregoric on the other.

FORECAST

"The past reveals a gradual evolution from individual remedial case work into preventive medicine along community lines. Dispensaries are becoming educational centers with the positive idea of 'health' rather than negative 'cure of illness.' Formerly our health departments were concerned mainly with street cleaning and garbage disposal, but now they concentrate upon control of disease through detection and elimination of its source. Education, prevention, and community responsibility are the up-to-date ideas. With such a retrospect, what have we reason to expect along these lines a few years hence? Judging from present indications, health insurance; periodic medical inspection of all children; compulsory prenatal control and a certain amount of dietary control; municipal pasteurization plants, will be some of the phases coming under public supervision."

One of the compensations for the tragedy of war is the fact that an enlightened public opinion is behind the organized effort for health protection and the campaign begun in war to secure military fitness is quite as necessary for civilian efficiency. Already our soldiers, revolutionized by enforced hygienic influences, are agitating different standards of health protection. "Every county as safe as the trenches" is none too high an ideal of life and normal conditions that ought to prevail.

As a factor in the practical application of democracy's latest vision —"Equal opportunity for health"—the American New Red Cross (appreciating the possibilities of such as service) is authorizing use of chapter funds for further development of public health nursing, based on the fundamentals herein outlined. With one arm around devastated Europe, "The Greatest Mother in the World" is reaching out the other (by way of county nurses) to the tuberculous, the school children, mothers and babies of rural North Carolina, in a determination that our postwar program shall be one of progress. The war may "be over—over there" but the big fight at home has just begun. If there is any problem as to the returned soldier, there is none regarding the nurse. Surely an army of them as a steady stream can be turned into the channel of public health nursing to check the slaughter of innocents by the kaiser of ignorance—and fight for conditions at home that will make the present safe for humanity and the future for posterity.

UNIFICATION OF NURSING ACTIVITIES UNDER HEALTH DEPARTMENTS

Chas. E. Low, M.D.
Health Officer, City of Wilmington and New Hanover County

It is safe to assume that public health nursing is now considered an indispensable part of any well organized public health movement. That this is true is borne out by the fact that many communities which lack anything like a well organized health department have already established some form of nursing service. The result obtained from that service must depend upon many factors, such as the size of the community in comparison with the nursing force; the financial and moral support which the community gives whatever nursing force it has; the personnel of the force itself, and the character of the organization which directs it.

Public health nursing is relatively a new field of endeavor in which the supply of properly trained workers is not yet equal to the demand. It therefore often becomes necessary to employ nurses without special training for the work. Wherever possible, however, graduate nurses only should be so employed.

The work is quite different from that embraced in private or institutional nursing and requires for success not only a broad understanding of human nature, with tactful adaptability to human frailties, but also many of the qualities to be found only in the successful teacher.

The problem of the administrator of public health work is to sift out the essential scientific principles which have the greatest bearing on the conservation of public health and get them presented in intelligible or usable form to his constituency.

It is my firm conviction that this can be efficiently done only through personal demonstration and contact with those whom you wish to reach. The printed word is educational and not to be neglected, but for results give me the element of personality and the human voice and hand. Grown people are much like children save that perhaps they are more difficult to teach, and we certainly would not think of teaching children by books alone.

From the very nature of their work public health nurses come in contact with a class of people who are the most difficult to reach otherwise. The circumstances connected with their visits are frequently of a nature which make their advice and instruction of immediate practical value at a time when those receiving the service are in a receptive

state of mind. All of these facts combine to favor the nurse as one of the most important means of disseminating knowledge relating to hygiene and sanitation.

Speaking abstractly and making allowance for individual exceptions, it is probably true that public health nurses are as conscientious, capable and efficient in their particular field of work as any other class of workers. There can be little doubt, however, that in many communities where several nurses are constantly employed by various organizations there has been lack of efficiency through failure of a proper appreciation of what really constitutes public health nursing and also through lack of centralized authority to outline their work, define their territory and assign their cases.

It is meant as no unfriendly criticism of my predecessors to say that the nursing force of the city in which I now have the privilege of administering public health activities was not reaching its fullest efficiency because of lack of proper organization as previously outlined. My predecessors, I understand, had appreciated the need of reorganization and centralized authority, but the time was not then ripe for perfecting it.

When I assumed charge of the department there were four nurses doing visiting nurse work in the city. One of these was employed by the department, while each of the other three was paid by various civic or business organizations, some of whom hesitated to place their nurse under control of the department for fear that such organization would lose both the credit of maintaining its nurse and the ability to dictate the cases for which its nurse should care.

The nurses themselves appreciated that they were not accomplishing the greatest possible results and were anxious for organization under centralized authority. Several conferences of the various employing organizations were held, at which it was pointed out that all were aiming at the common end of preventing and caring for disease. Attention was called to the fact that when each nurse operated at large in the city there was bound to be much overlapping of travel and effort. It was also shown that without proper centralized authority there could be no coherent plan of work or means of directing it. The need of a supervising nurse to plan, direct, and teach was made clear.

Finally the seed sown at these conferences bore fruit, and an agreement was reached that all the nurses should be responsible to the health department and that all cases under the patronage of any one of the various civic, charitable or business organizations should be cared for by the nursing force irrespective of by whom each nurse was paid.

No funds were available in the health department for the salary of a supervising nurse, but some of the ladies most active in the organizations which were supporting the nurses successfully appealed to mill owners for funds, and the supervising nurse's salary was thus provided. The city was divided into districts which were not of equal geographic size, but which, from an estimate of the social and economic character of its inhabitants, it was arbitrarily decided would offer about equal amounts of opportunity and work. A small fee, varying from five to fifty cents for each visit, is charged to those able to pay, although service is not denied to anyone owing to inability to pay even the smallest fee. This pay system has been adopted for three reasons. First, that it might eliminate the feeling of being a recipient of charity which is obnoxious to so many. Second, that it may obviate a tendency to pauperism through dependence on either charity or free service, and third, that it affords some revenue for the purchase of supplies and the maintenance of the service. The wisdom of this fee system has been amply demonstrated, especially since one of the mills contributing to the fund for the salary of the supervising nurse has withdrawn its support. In connection with the collection of a fee for service it should be noted that no such charge is made to families of mill operatives employed by the contributing mills.

Personally, I am not an unqualified believer in specialized nursing in the sense that a nurse must do nothing but tuberculosis work, prenatal work, etc. I think that a nurse who is capable of doing public health work of one kind is capable of doing all kinds, for practically identical principles govern most of the work. It seems to me that a nurse who comes into frequent and intimate association with her clientele under all kinds of circumstances and particularly when she has rendered some tangible personal service, can secure fuller confidence and better coöperation from the families under her charge than a special nurse who must often undertake to do what the family naturally antagonizes. With this belief I have organized our force of nurses so that each one does all kinds of work, bedside nursing, tuberculosis, prenatal, postnatal, infant welfare, school, and quarantine work. Each nurse visits regularly the schools of her district and refers suspected illness or defectives to the family or departmental physician.

The supervising nurse secures from our files reports of sickness and births; she also interviews physicians, who are encouraged to notify her concerning maternity cases, and all these are assigned to the proper district nurse. The supervising nurse also attends clinics and visits schools and private cases with the district nurses. She also keeps and compiles all nursing records and the morbidity spot maps.

No means of transportation is provided for the nursing force other than that furnished free by the street railway company. On occasion the department provides a car for visits in the suburban and rural sections not reached by trolley.

On the whole I think the civic and business organizations and the nurses are satisfied with the new arrangement, which has materially increased the efficiency of the department by making possible the extension of old lines and the addition of new lines of work.

OUTLINE OF A PLAN FOR THE EDUCATION OF HOME NURSES

Chas. E. Low, M.D.
Health Officer, City of Wilmington and New Hanover County

If there was any doubt that there was a vast number of homes in which no member of the family had any adequate knowledge concerning nursing or the home care of the sick, the influenza epidemic dissipated that doubt and proved that modern housekeepers need some sort of instruction which will give them some practical knowledge concerning disease and its care. To those of us who recognize the probability of a further outbreak of influenza, the need of this knowledge is perhaps more clear than the means by which it can be imparted.

No physician is long engaged in practicing his profession when he learns that a goodly portion of his hurry calls come from sources not in urgent need of immediate attention. No doubt most of us can recall instances during the panic of the past epidemic which would be quite ludicrous were they not bordering on the tragic. At least some of us charged with the administration of community relief measures were much annoyed by the number of cases calling for immediate attention, which upon investigation proved to be due to overalarm or even hysteria. On the other hand, many families did not appreciate the gravity of the cases in time to secure the early attention needed.

Cases were noted in Wilmington's epidemic where the family had absolutely no knowledge about preparing the simplest articles of diet for the sick, where attempts were made to take temperature with the wrong end of the thermometer in the mouth, and one colored nurse was reported as going about taking temperatures with the bulb broken off the thermometer she used. Much ignorance was manifested about counting the pulse and respiration, the care of sputum and other bodily discharges, as well as of the importance of bathing, keeping the bed smooth and pillows arranged and other simple sickroom facts, which every homekeeper should know.

In casting about for a means of getting some practical nursing knowledge into the home, it was suggested that it might be done through training women in small groups, each of whom would in turn teach other individuals or groups in their respective neighborhoods. Churches, schools and other organizations were appealed to through the press to send volunteers to receive this instruction, and these groups were assembled at schools and convenient places where the instruction was given by myself and the district nurses.

The Red Cross Manual on Home Nursing and Sanitation was used as a textbook in connection with a schematic outline of important points to be explained and demonstrated. A brief outline of disease classification was given and bacteria and protozoa were explained in their causative relationship to the communicable diseases. The methods of transmission of these diseases were discussed, as were the necessity for and means of disinfecting bodily discharges from all sources. Disinfectants were either shown or spoken of as types and their method of preparation in proper strength explained.

The district nurses gave instruction and practical demonstration in counting pulse and respiration and in taking temperatures and the care of the thermometer. A discussion of the relation of pulse, respiration, and temperature to the character of the illness was included. The nurses also gave instruction by actual demonstration as to how to make a bed and place pillows, noting the relation of wrinkled sheets and humpy beds to bedsores, how to use the bedpan and disinfect discharges, how to give partial sponge baths, how to care for the person of the attendant. A little something was also said about diet and methods of preparing a few simple dishes for the sick.

The instruction to each group was embraced in three or four informal talks and the audience was urged to ask questions about the work. From the shortness of the instruction to each group it is of course apparent that only the most elementary principles were discussed. It was hoped and intended at the start that these groups would continue the work under the Red Cross and secure certificates, but through some technicality about the instruction not having been given by the Red Cross nurses to formal applicants for the Red Cross course these certificates could not be issued.

How well these groups may have later spread their knowledge in their respective neighborhoods is an undetermined factor, but it is felt that the method has possibilities of further development, especially as it affects the teachers and through them the scholars over whose des-

tinies they preside. The interest displayed by the negro groups, which were largely made up of school teachers, was of itself enough to warrant the effort.

SOROSIS MILK STATION AND BABY CLINIC

COLUMBIA MUNDS, R.N.
Supervisor Public Health Nursing, Wilmington

In the spring of 1916 a temporary baby hospital was opened in Wilmington which ran about three months. The next spring it was reopened and, seeing the great benefit derived from the feedings given to "out patients," a public milk station was agitated. One of the doctors, a baby specialist, first worked to interest the people in it and succeeded so well that funds sufficient to run it three months were subscribed. The milk station was opened July 12, 1916, in a small room in the courthouse, with two patients.

The public school nurse, who is under the board of health, and who did infant welfare work in summer, prepared the feedings until the middle of October, when the Ministering Circle of King's Daughters loaned their nurse until arrangements could be made to continue the work permanently.

The Wilmington Sorosis took up the work and, by establishing a milk committee, arranged to finance it, and the first of November put a registered nurse in charge. The city and county give a small monthly appropriation, which is the only regular contribution the committee has to depend on, the rest of the money being voluntary contributions.

By August 1st, less than three weeks after the opening, twenty-three babies were being fed. During August 3,399 and during September 4,600 feedings were made and given free of charge.

In the winter the babies are comparatively well and we have fewer patients; it is a case of "when the devil is sick the devil a monk would be, when the devil is well the devil a monk is he." So during that winter of 1916-17 the work fell off, as we expected, and we made only about 1,500 feedings a month. The nurse gave three to four hours a day to the work and accomplished it easily in that time. The children who go to school as a rule have to carry the milk for the babies in the families, so in the winter we give it out about three P. M. and in the summer, when there is no school, about noon.

The equipment was improvised: A two-burner gas stove, a large enamel can was used as bottle sterilizer (about twenty bottles could be boiled at one time), the necessary saucepans, bottles, bottle brushes, etc.

We are glad to have pay patients, as it helps us financially, and require patients to pay a small sum each week if possible, but if they are not able to pay we give the baby the feedings, providing the bottles as well as the milk.

The feedings are made for each individual baby by prescription, the number of bottles the doctor orders being fixed each day. The only requirement for charity patients is that the prescription be renewed every two weeks. The milk is discontinued unless the prescription is renewed or a sufficiently good reason given, as we cannot take the responsibility of feeding babies unless the doctor sees them regularly.

Raw feedings, modified with boiled water and sugar (cane sugar is always used except when specified, as sugar of milk or any of the patent sugars are so expensive and economy is rigidly observed in our work), boiled feedings, modified with water, rice or barley water, condensed or evaporated milk, lactic acid milk of any strength, eiweiss or protein milk, malt soup and flour feedings and the new dried milk feedings are made; in fact any kind of feeding the doctors order can be supplied.

The work is very interesting, and the babies improve almost immediately if the mothers carry out instructions. One case we have been interested in is "Hester Jane," a baby we have had in the clinic and on the milk station for nearly two years. The mother died of Bright's disease a few weeks before we saw the baby the first time. She had both gastric and intestinal conditions, and was so seriously emaciated from improper feeding that we thought she was an idiot. The mother left Hester Jane and her brother, a boy of four, to their aunt, in addition to whom she had four children of her own. The woman brought the baby regularly to clinic, followed closely the doctor's directions, and within six weeks we put the baby on orange juice and cream of wheat. The aunt has improved mentally since having some one tell her how to do things in a way she can understand. But we do not always get such coöperation, as one baby on diluted lactic acid milk was given, the mother said, "nothing else but postum."

The first six months the Sorosis took charge of the milk station—November, 1916, to May, 1917—we made 19,996 feedings; 56 babies were fed, only two of whom died. In the two years ending November, 1918, we made 79,281 feedings; 441 babies were fed, of whom eight died.

A memorial building for women and children was given the James Walker Hospital and a year after the milk station was opened it was moved there. The donor of the building, Dr. James Sprunt, set aside a room in that building for our use, which he provided with

modern equipment, the registered nurse having charge and each pupil nurse having a month's service under her to be taught the making of feedings and the care of bottles and equipment. The hospital feedings are made in the milk station, and the coöperation of the hospital has proved how practical is the theory that is being put forward so often at the present time—the working together of the hospital and the public health nurses. At the present time the milk station is being more than doubled in size by Dr. Sprunt. The work has grown so that we realize that by the coming summer we would have entirely outgrown our quarters.

In connection with the milk station we have a baby clinic. The latter was opened April, 1916, three months before the milk station, by the Ministering Circle of King's Daughters and financed by them for one year. For that year the clinic was held in an office in the courthouse and was transferred to the hospital at the time the milk station moved there, a room next to the latter being set aside for clinic use. Every baby is stripped, weighed, and gone over carefully by the doctor each time he comes to clinic, and a record kept.

The feedings are changed if necessary, and we have printed diet sheets for different ages, 9-12, 12-15, 15-18, 18-24 months, which we give the mothers. If the baby is ill he is brought to clinic twice a week; if under observation for feedings about every ten days or two weeks, and the well babies once a month.

The public health nurses working in the clinic, the milk station nurse being in charge, it is possible for us to get the necessary meicines for the charity patients through the health department, also to follow up the sick babies, take their temperatures, and see that the doctor's orders are carried out. The clinic takes care of babies and children up to about eight years old. If the former need feedings they are put on the milk station unless the doctor thinks the mother, under the supervision of the nurse in whose district the baby is, can make them properly.

We have clinic twice a week in the afternoon, and in the past year have had 89 new babies and 450 old babies who attended clinic. We have done some wonderfully interesting work in specific cases, giving salvarsan to babies from a few weeks old. The salvarsan clinic is held every two or three weeks. First a Wassermann is done; if the baby is under a year a Wassermann is also done on the mother. If the Wassermann is positive, four treatments are given, and a few weeks after the last treatment another Wassermann is done. Most of the cases, after treatment, have been negative or one plus, a few have been so bad they still remain three or four plus, and they have a second

course of treatment. We give, in cases under a year, the solution in the anterior fontanelle in the superior longitudinal sinus, and in children in the median basilic vein at the elbow. One baby died of acute specific nephritis forty-eight hours after the first treatment. The mother was very bitter at first but recently sent to ask if she could have the treatment herself. We use mercury both as an ointment and internally with salvarsan, and continue it after the latter treatment is discontinued.

Last fall we started in the clinic the Schick test for diphtheria. This test shows the immunity or lack of it for diphtheria. The test has been followed by the toxin-antitoxin (when the parents gave their consent) in the cases that lacked immunity. Working with the department of health and the school board we are also putting the Schick test through the public schools of the city.

Schick tests made	1044
No. positive	447
No. negative	473
No. not read	97
Pseudo tests made	150
No. positive	7
No. negative	129
No. not read	24
No. given toxin-antitoxin	167
No. retests	35
No. positive	3
No. negative	29
No. not read	3

As we are, I think, the first clinic in this State to do this test, I take the liberty of saying what it is. Diphtheria toxin ($\frac{1}{50}$ minimum lethal dose that is required to kill a 250 gramme guinea pig) is put in 10 c.c. sterile saline, $\frac{2}{10}$ c.c. of this solution is put under the outer skin (a tuberculin syringe with the blue plunger being used to get the amount accurately), it looks when done like a small white blister. After three days we read the tests, marking them 1, 2, 3, 4, or 5 plus or minus as the case may be. The positive result shows a red place often as large as a quarter, hot and slightly swollen; a result like that would indicate a 4 or 5 plus; a 1 plus shows red no larger than a small pea. The negative after three days shows just the prick of the needle. After about three weeks we give three doses of the toxin-antitoxin, the doses being given one week apart. We have had very little reaction from the test and only about ten of the children have had any reaction from toxin-antitoxin.

Almost all of the children who have been sick from the toxin-antitoxin have been so following the second dose. We give it in the muscle of the upper left arm as the typhoid treatment is given. We give it on Friday and even in cases where there has been reaction the children have been back in school on Monday.

The Schick test and the subsequent treatment have been used only about six years, and so far as statistics are available from the retests made it is the only antitoxin that is 100 per cent efficacious. We have given the pseudo test in one hundred and fifty cases and very few of them have been positive. The solution for the pseudo differs from the Schick in that the toxin has been destroyed by heat, leaving only the bacillus protein, which bacillus is present in both. In the pseudo we give double the Schick dose, $\frac{1}{10}$ c.c., and have a papule more or less urticarious in character, which shows in 24 to 36 hours if positive; and in three days, the time the Schick test shows if positive, the pseudo test has disappeared. It has been our observation that any case that had a reaction from the toxin-antitoxin had a positive pseudo.

DISCUSSION

Dr. W. S. Rankin, Secretary State Board of Health, Raleigh: This is one of the most valuable papers I have heard in a long time, and I appreciate it both personally and officially. It deals with something definite which will undoubtedly realize its objective in a marked decrease in the death rate of children. The number of children that you have been treating is remarkable. Altogether this is one of the most encouraging reports I have heard in a long time. Just such work as this and as Mrs. Vaughn is interested in is the kind of thing that is going to do more than anything else to cut down our death rate.

Dr. Low, Wilmington: Preventive medicine is the real work of a health department. This statement is so trite as to sound almost foolish, yet I fear that too many of our departments are overloaded with detail work, involved in complaints about so-called nuisances arising from faulty garbage collection, street cleaning or plumbing, most of which have only a remote bearing on public health. The work of the department of health should be preventing sickness, and it is our conception that this is best achieved by promoting whatever measures produce immunity to disease.

I was glad to hear Dr. Rankin's endorsement of this diphtheria work as being in line with that which he is undertaking as a statewide measure. Such a statement of itself implies that it is advanced, constructive public health work.

In a conversation with Mr. Hedrick, secretary of the American Public Health Association, who has appealed to you in the interest of that organization for increased membership, to which appeal I am glad to lend my support, he paid North Carolina and its State Board of Health one of the highest of compliments with regard to the character of the work being done here. He expressed surprise and said frankly that he did not expect to find it so advanced. He found one of the best organizations that he had ever found in an experience extending over a period of several years. What struck him most forcibly was that some of our local departments were doing life extension work.

I consider it a great privilege to be working under Dr. Rankin, although my department is technically not affiliated with the State Board of Health but is organized under a special act of the Legislature. I, therefore, feel that it is a distinct privilege to be associated with this association. The Legislature has this year passed some excellent public health measures put up to it by Dr. Rankin and endorsed by the Governor, and it is this forward-looking attitude of our state authorities which is placing this State in the forefront in this field.

I wish to express my thanks and appreciation to both Miss Munds and Dr. Sidbury for presenting this paper and directing the work which made the paper possible. Dr. Sidbury is a man who is responsible for the practical working out of this problem in connection with the health department nurses who rendered valuable assistance. We started the campaign by a series of press articles calling attention to the fact that by the use of the Schick test it is possible to determine who is and who is not immune to diphtheria, and also to the fact that it is possible to render susceptible persons immune by the use of the toxin-antitoxin. It was announced also that Dr. Sidbury had agreed to do the practical work, which helped to insure public confidence. The next thing done was to address a meeting of the teachers of the city, where the Schick test and the importance of the work was explained and a demonstration was given of its painlessness and simplicity. The teachers were urged to take the test and also to assist in getting the parents' consent for the school children to be tested in the schools, as we could assume no authority without the parents' consent. Circulars were prepared and distributed through the schools by the teachers. In this circular the nature of the test and the method of conferring immunity was explained and a blank space left for the parent to give written consent both for the Schick test and the toxin-antitoxin treatment. It was also stated that the Schick test would be furnished free, but that the toxin-antitoxin would be furnished for $1, the cost of the

material. The circular warranted the operation as practically free from danger and urged that consent be given and the dollar furnished for the toxin-antitoxin. It has been very satisfactory to have so many of the parents have their children come back and take this toxin-antitoxin after the Schick test had shown its need. The fact that we were able to get upwards of one thousand tests shows that the parents have grasped the importance of coöperation in this form of public health work, so Dr. Sidbury with the assistance of our nurses agreed to carry this work through the schools another year.

Some striking things about conditions shown by the test are that very young babies will often show immunity, but their immunity will disappear within a few weeks. This is in agreement with clinical experience, which shows that comparatively few very young children have diphtheria. A very large percentage of the nonimmunes is found under eight years of age, and it is a bit unfortunate that such a large percentage should be even below school age, as they are more difficult to reach before coming to school. You have been shown in what a surprisingly large percentage of young children you will find a positive Schick, and for these it is necessary to build up immunity with toxin-antitoxin.

Dr. E. J. Wood, Wilmington: I am not going to tire you by staying long on my feet. I only want to say that this is the best original work ever done in North Carolina, and that the public health sentiment created in Wilmington has been of infinitely more far-reaching benefit than the direct results.

THE IMPORTANCE OF THE SUPERVISING NURSE AND HER QUALIFICATIONS

Dr. C. C. Hudson, Health Officer, Charlotte

The importance of the supervising nurse and her duties and responsibilities are by no means simple and their complexity and variety sometimes seem overwhelmingly discouraging. This ought not to be so, for there is no more interesting work in the world than that incident to such a position, and the power of wise selection ought to be so exercised as to rid it of the terrors of undefined responsibility. The supervising nurse of a progressive association, if she is a wise woman, will frequently take time for meditation on the subject of her duties, for no human being could possibly meet all the demands likely to be made upon her. If she is to retain her peace of mind, elimination must not

be left to accident, but must be the result of a carefully laid out program, and a distinction must be made between necessary duties and merely desirable ones.

The necessary duties naturally divide themselves into four groups:

First, her responsibility toward the board of managers for whom she acts.

Second, her responsibility toward the nurses whose well-being and efficiency lie largely in her hands.

Third, her responsibility toward the patients for whom the whole organism is primarily existent; and,

Fourth, her responsibility toward the community at large which has the right to expect from her interest, coöperation and help at all times.

The value of a supervising nurse lies in the skill with which she blends and fulfils these obligations, allowing no one to be met at the expense of the others but maintaining the desirable balance which will strengthen all.

Her monthly reports to her board must be carefully prepared. First of all, they must contain statistics, and these will never be anything but unintelligible to the average member of the board, if they are delivered without comment. One thousand, six hundred and twenty-three patients means nothing to anyone, but these figures assume significance if it is pointed out that the previous year during the same month the number of patients was a hundred less, or that the addition to the staff has made possible a relatively larger number of visits per patient. The supervising nurse has to strike an optimistic note in the presentation of difficulties.

The second responsibility of the supervising nurse—that toward the nurses—is more tangible and simple. The first is justice, second is the power to see the work as a whole in which all the different parts are proportionately valued. Third, orderliness of method, which usually goes under the name of executive ability. Fourth, power to delegate responsibility. Through all these qualities must run the golden thread of sympathy—the quality which has the power to raise all work from the mere level of required duty to the heights of joyous service.

The same obligation rests upon the supervising nurse that rests upon her board of managers; the obligation to secure for the community an efficient, well trained body of nurses doing good work and the obligation to secure for the nurses themselves happy, healthy conditions under which to accomplish this; the selection of nurses, therefore, has to be given the most careful consideration.

Her third responsibility is that toward the patient, the fact that it is for the patient that all else exists. A good supervisor early learns to delegate both responsibility and actual work and to spend the time thus saved in the selection and training of those to whom this responsibility and work shall be delegated.

The fourth responsibility, the duty of the supervising nurse toward the community at large, is full of complexities. The supervising nurse finds herself in demand for every kind of committee and meeting and conference. There is a sweet reasonableness about each request for her assistance, because it is quite true that visiting nursing, touching as it does the home life of the people, is closely coöperative with a great variety of other activities.

One duty to the people at large that is met by the supervisor herself is that in listening to complaints with dignity and fair mindedness she can often avoid petty discomforts growing out of misinformation. Time spent in explanation is time well spent.

The supervisor will do well to apply herself to a study of the various personalities assigned to her for supervision, with a view to gaining a just estimate of their powers and abilities and the knowledge which will enable her to give her help in the best way. With tact and the right spirit the nurses look upon their supervisor as a friend and helper. Allow me to quote Florence Nightingale: "To be in charge is certainly not only to carry out the proper measures yourself but to see that everyone else does so too; to see that no one either wilfully or ignorantly thwarts or prevents such measures. It is neither to do everything yourself or to appoint a number of people to do each duty, but to insure that each does that duty to which he is appointed."

A lesson which has not been learned cannot be taught; so it should be the earnest effort of every supervisor to thoughtfully grasp the fact that only by intelligent delegation of responsibility will a set of reliant nurses be trained and the continuous good care of the patient assured.

The arrangement of work claims the supervisor's attention, and on her ability to do this well depends much of the comfort of the nurses.

As regards the teaching of bedside care, the nurses of course have had their hospital training, but they require assistance in the adaptation of hospital methods to tenement or home nursing. This is done by demonstration rather than precept. Nor is it enough to merely teach proper methods of procedure. Unfortunately, few human beings are capable of a sustained excellence without constant oversight. If, as we believe, a high standard of nursing skill and a careful attention to detail are the only foundation stones on which good public health work

can rest, the supervisor must realize that she cannot relax her vigilance in regard to the actual bedside care given to the patients by her subordinate nurses.

As regards the actual nursing care of the patient, it goes without saying that the supervisor should try to provide this in its utmost perfection. It has been proved that, with knowledge and initiative, really excellent care can be given under the most adverse conditions, and it is for the supervisor to set and maintain such a standard as will insure to the patient the maximum of skill and comfort.

Therefore, an important part of the supervisor's work is the talking with doctors, the calls on co-workers, the interviews with those who want to help, the listening to complaints and the public speaking that is required of her.

It is generally accepted as axiomatic that to see the other man's point of view is the secret of coöperation, but in the course of daily work the ability to make the other man see yours is certainly not of less importance. The greatest successes the public health nurses have gained have been won by the exercise of just this power. The supervising nurse's qualifications, therefore, must be first, natural ability—this includes love of humanity, desire to serve, perseverance, patience, and tact. Second, general education, a high school education is required before you can enter an accredited hospital training school of good standing, but better still is the college education. Then you add to this her state registration, then a postgraduate course in public health work. She must know and understand the history of nursing, its development, and how to organize. She has additional training in properly supervised agencies other than hospitals because of the social economic problems she is forced to meet and the necessity of her coöperation with all other agencies.

The supervising nurse's third qualification is that she has had training in the different special lines. There is the tuberculosis nurse who assists the doctors or clinics to which she has persuaded suspected cases and those who have been exposed to the disease to come. She visits clinic patients in their homes, showing the families how to carry out the doctor's orders for the care of the patient and the protection of the rest of the family. She seeks to get aid for those unable to work; in short, she is guide, philosopher and friend to the victims of this most dreaded and most universal of diseases, and endeavors to protect the health of all who, through their daily contact, are exposed to it.

Then we have the school nurse. She assists the school doctor in his medical inspection of children. She carries home his advice to the parents of any child who is not perfectly well, explains what the

trouble is and what may be done to relieve it. She instructs the child with a weak back in those exercises which will make him strong. She helps the mother plan the right dietary for an undernourished child. She seeks to remove the causes of eye strain and headache by securing better lighting and ventilation. She holds frequent inspections of the children to discover unclean heads, decayed teeth and other conditions which interfere with good health, good temper and good school work. She teaches the children to work for good health at home and at school. Our visiting nurse, who gives the bedside care in the home and the instruction of the family in caring for the patient in her absence, the teaching of health habits, etc., goes and cares for all alike, only where there is a doctor in attendance.

There is the infant welfare nurse who makes systematic, regularly timed visits to babies in the community, keeping a watchful eye on their progress, organizes Little Mothers' clubs, does prenatal work with mothers, arranges outfits and nursing care at the birth of infants, etc.

The industrial nurse, who looks after the health of the workers in factories, store, mine or mill.

The medical social service worker, who forms the connecting line between the hospital or dispensary and the home.

The venereal disease nurse, who assists the doctors in clinics and who does the follow-up work to persuade the patients to come to clinic. The supervising nurse must know each special division to be able to direct and instruct her staff nurses. She must be a teacher as well as an executive.

The supervisor must have large horizons, broad views, and a far-seeing vision, and any of these are not obtained by neglect of detail. She has to be ever alert to the modern problem. Problems are as inevitable to a new and developing movement as are the difficulties which beset the pioneer in a new land.

THE TUBERCULOSIS CLINIC

Dr. C. C. Hudson, Health Officer, Charlotte

We have several organized agencies for fighting tuberculosis, the chief of which are the open air school, the sanatorium, and the tuberculosis clinic with a follow-up system for the home. It is now recognized that many cases of tuberculosis in adults are the result of infections started in childhood. Few deaths are recorded frm tuberculosis between the ages of four and fifteen years, but anyone who studies children from homes in which there have been cases of tuberculosis cannot but be impressed with the fact that many of the children will be fit

subjects for active cases a little later in life, if not given proper attention and taught how to live. The sanatorium does much good, so far as it goes, but it will be a long time before we shall be able to care for all our cases of tuberculosis in sanatoria. Even though we were able to send all cases to institutions, we could hardly expect to keep them indefinitely and it would still be necessary to come back to the home and the clinic as the institution of last resort, and this must remain our greatest agency in the fight against the "Great White Plague." The following are the principal reasons for the existence of the tuberculosis clinic:

Only a part of our people are able to pay for medical attention. Many people on account of poverty can have a physician only as a last resort. They try every cough medicine and all remedies advised by older people in the neighborhood and then call the physician. Tuberculosis is a slow, wasting disease, and the average family is reduced to poverty, so that the public must make provision for the care of the patients or they will receive little medical attention. This attention can be more easily given in groups than by individual home or office visits, and the tuberculosis clinic offers the best means of securing this attention.

Many physicians prefer to send patients to a clinic to having them in their offices. It does not always make the other patients in the office feel comfortable to have a thin, anæmic individual sitting opposite and constantly coughing. Better facilities can usually be provided for diganosis in the clinic than in the office. The use of an X-ray machine can usually be secured. A nurse is available to prepare the patients for examination. The laboratory is available for sputum examinations or the sputum may be sent to the State Laboratory by the nurse. The physician who has charge of the clinic should become expert in the diagnosis of tuberculosis, so that many cases in the early stages of the disease will be discovered. This is the time when most good can be done. As the work will be free, many people will apply for examination who would not do so were they compelled to pay. Many cases will thus be discovered and cured who would not be discovered until bedridden. Patients can be more easily taught the essential precautions and the treatment in groups than individually. If one patient erects a sleeping porch, others will learn the cost and how it was constructed. One patient seeing another keep up the precautions will do likewise.

The children from homes in which there have been cases of tuberculosis can be brought to the clinic, examined and, where necessary, given instruction in reference to food, sleeping in the open air, and the

necessity of going to the open air school. As they will see patients with advanced cases of tuberculosis, it will be much easier to get them to obey instructions.

The tuberculosis clinic is the center for general educational work. Short newspaper notices can be given describing the work in the clinic, the symptoms of tuberculosis and the importance of early diagnosis. One week each year can be devoted to a general examination of all people in the city who have coughs. All suspicious cases can be watched through the clinic and much valuable work done.

The essentials for the conduct of a successful clinic are the following:

1. A capable, interested physician who should be paid for his work and who should have the confidence of the physicians of the community and be able to secure their coöperation.

2. A suitable office of at least four rooms; one white and one colored waiting room, a dressing room and an examination room. The office should be light, warm, and free from noise.

3. A capable follow-up nurse.

4. Adequate supplies, such as sputum outfits, instructive pamphlets, files, examination cards, etc. It is also necessary to supply some medicines, but these may be secured upon prescription.

5. The outfits for collecting sputum must be kept on hand, and an X-ray is of great assistance.

A tuberculosis clinic was started in Charlotte in the early part of 1918. Some trouble has been experienced on account of changes in the staff and the lack of a suitable office, but much has been done. Five hundred and five patients were registered at the clinic during 1918. Most of the patients were discharged as not having tuberculosis. Two patients were sent to sanatoriums. Twenty-nine patients died during the year. Other patients were discharged for various causes, and two hundred and sixteen patients were under observation at the end of the year. Not all of these were active cases of tuberculosis. Many of those under observation were children from tubercular homes. The nurse made 2,270 calls in connection with the tuberculosis work during 1918.

Tuberculosis is a preventable disease. It is curable, fresh air, proper food and rest being the essentials.

North Carolina has a fine climate. There is no reason for people in this State not living in the open air most of the year and sleeping in the open air all the year. With proper instruction and care tuberculosis in North Carolina should be eradicated, and we believe the tuberculosis clinic should be the basis for the general work.

COUNTY TUBERCULOSIS CLINIC IN CONNECTION WITH THE WHOLE-TIME HEALTH DEPARTMENT

Dr. A. J. Warren, Salisbury
Health Officer, Rowan County

The title of this paper is the "County Tuberculosis Clinic in Connection with the Whole-Time Health Department." I shall discuss this subject by asking and answering three questions, namely:

I. Why is a tuberculosis clinic necessary in connection with a whole-time county health department, or in any other connection?

II. What are the things that a tuberculosis clinic should do in connection with the whole-time county health department?

III. Knowing the things that a tuberculosis clinic should do in connection with the whole-time county health department, how can this knowledge be turned into accomplishments?

I. Roughly speaking, we may say that the medical profession is divided into three or four branches—private practice, hospital or laboratory work, and public health service. A man who takes up one of these branches is not necessarily interested in or equipped for another. While all physicians are supposed to have approximately the same medical education, and therefore to be interested in those measures which tend to raise and improve the standard of public health, it is only those who are most keenly interested in this work who have made it a specialty.

In the pursuit of his calling the private practitioner comes into contact with certain diseases which by their nature are a matter of public as well as private concern. In so far, therefore, he is expected to interest himself in the general welfare of the community, but there is no way of compelling him to do so. The State grants him a license to practice medicine, and in exchange for this license, or permission, he is expected to serve the State more or less gratuitously. At best it is volunteer service, and therefore intermittent and unsatisfactory. That the State expects this service is shown by laws referring to transmissible diseases, the notification of births and deaths, and other matters which in one sense belong to his private business, but which in another sense are part of his public responsibility.

In regard to tuberculosis there are certain regulations, which all physicians ought to comply with, no matter how little interested they may be in public welfare, or how unwilling to consider other than their personal interest. These regulations require: First, that all cases of tuberculosis be reported to the local and State authorities, since in dealing with a transmissible disease it is necessary to learn of its distribu-

tion and prevalence. Second, the physician in charge of a tuberculosis patient should give this patient full prophylactic supplies and teach him how to use and dispose of them, and full instructions regulating his daily life. And third, all houses vacated by a consumptive either through removal or burial should be reported and properly cleaned. If these regulations had been complied with they would doubtless have insured a system of satisfactory supervision of tuberculosis. As it is, most of our large cities have found it necessary to put special workers in the field and establish tuberculosis dispensaries to give exactly the same supervision and control which these regulations are designed to secure. The private practitioner, endowed with special education, special opportunity and special authority, has not used these endowments, or else has used them to so slight an extent that the community has received no benefit.

The private practitioner should be as capable a teacher, as careful a distributor of supplies, as alive to the danger of tuberculosis, as the dispensary physician or nurse. The difference between these two groups is that one acts, the other does not; or acts in such an intermittent or irregular manner as to be productive of no results. And it is because of this lack of action on the part of the physician in private practice, this failure to recognize, report, teach, and continually supervise consumptive patients, that our State, counties and cities are establishing tuberculosis sanatoria and dispensaries. The care of tuberculosis is gradually being withdrawn from the physician in private practice and placed in the hands of specialists who devote their entire time to the welfare of the community.

We may ask why the private practitioner should be supplanted by dispensary control? He should be supplanted for two reasons—because of the nature of tuberculosis, and because of the variations in the rank of the medical profession.

Let us consider the nature of the disease. Tuberculosis is a prolonged chronic, not acute, disease drawn out over a period of months or years. The patient has many ups and downs, being sometimes so ill that he places himself under the care of a physician, but sometimes he does not see a doctor for months. How can we hold the private practitioner responsible for a patient of this kind? How can we hold him responsible for the conduct, surroundings and teaching of a patient he never sees? With the best intentions in the world the private practitioner cannot follow and supervise a disease of the nature of tuberculosis. If he attempted to he would have little time for other things.

Tuberculosis is decidedly a disease of the poor. A poor consumptive must consider the spending of every penny, and the doctor's fees count.

For this reason the patient will pay as few visits to the doctor as possible. A doctor who sees a case only once or twice may well hesitate to make a diagnosis of tuberculosis; but poverty of the patient prevents him from observing the patient for a time.

Patients of the poor classes continually change their doctors, so it is small wonder that the doctor soon forgets these transient patients, and feels himself in no way responsible for them. And it is for just such cases that dispensary control becomes necessary. It is no reflection upon the private practitioner that he has failed to make headway against tuberculosis. It simply proves that people with tuberculosis must be watched and cared for by those who devote their entire time to it.

VARIATIONS IN THE RANKS OF THE MEDICAL PROFESSION

When we think of the medical profession, we unconsciously think of its finest members, not only of the leaders in thought and achievement, but of the highly educated, conscientious men who form the largest part of it. We are apt to overlook the men of another sort, men who are poorly equipped, and are imbued with the spirit of commercialism, but yet are none the less members of this great profession. Yet even the least of these is armed, and has the sanction of the State in bearing these arms, which may be used against the common enemy, or in a guerrilla warfare in behalf of his own interests. The wide diversity among its individual members is the reason why the medical profession has been, and will be, unable to act as a united whole in the warfare against tuberculosis.

All physicians, no matter how well trained they may be, are not by any means good teachers. And therefore it matters not how keenly aware they are of the dangers of tuberculosis, they may be unable to impress it upon their patients. The busy practitioner has little time to be a careful and detailed teacher. When conscious of waiting calls and a crowded waiting room, he can give only the superficial instructions.

There is another class of practitioners, who, while willing enough, are unable to contribute very largely to the antituberculosis campaign. These are the men whose education is limited, and they are unable to make a diagnosis until the case is far advanced, and sometimes then hesitate to commit themselves. No amount of honesty and of conscientiousness can compensate for lack of skill.

Then there is the unethical practitioner, who, while competent enough, feels himself in no way responsible for the protection of the community against infectious diseases. Most often the reason for this

indifference, this failure to tell the patient he has tuberculosis, and those who surround him of their danger, is because many a patient is afraid to know the truth. If the doctor tells him he has tuberculosis he immediately changes his physican, and seeks another who will give a more comforting diagnosis. Thus the struggling physician, to whom this may mean the loss of livelihood, is forced to choose between self-interest and the interest of the community, which he learns to despise, because it has forced him to dishonesty.

These are reasons sufficient why tuberculosis should be placed under the supervision of the tuberculosis nurse and the tuberculosis clinic.

II. What are the things that a tuberculosis clinic should do in connection with the whole-time county health department?

First. Give medical care and supervision to all cases of tuberculosis applying for treatment; thorough instructions as to the dangers to themselves and others, and as to the necessary prophylactic measures; provide medicine, and sputum cups.

Second. Continual observations at their *homes* of *all* cases—the indigent, needy, ambulatory and bed cases.

Third. The prompt recognition of incipient cases, so that they may be sent as early as possible to sanatoria for treatment, and to try and arrange for the admission of all favorable cases to sanatoria.

Fourth. Supply proper food, in the form of milk and eggs, to favorable, indigent patients.

And last, but by no means the least, the county tuberculosis clinic should extend its influence into every home where there is a suspected case or where there has been a death from tuberculosis; and to every school child in the county.

III. Knowing the things that a tuberculosis clinic should do in connection with the whole-time county health department, how can this knowledge be turned into accomplishments?

The things as enumerated, that a tuberculosis clinic should do, appear from the reading rather simple, and of easy execution. But he who thinks in such a manner does so because he has never attempted to bring to pass that which is written. They are of difficult execution, and require patience, tact, energy, and endurance.

The degree to which the knowledge can be turned into accomplishments rests primarily and almost exclusively upon one thing—a well equipped, tactful and energetic public health nurse. The nurse works under the direction of the county health officer, who also has the responsibility of the clinic. The nurse should be equipped with an automobile so that she can readily transport herself from place to place. The duties of the nurse may be outlined as follows:

1. Give publicity to days and hours of clinic. (The clinic in Rowan County was held on Monday and Friday afternoons from two to five o'clock).

2. Be on duty during clinic hours and keep accurate clinical record of each patient, taking temperature, pulse, respiration, and weight each time, and give the date for the patient's subsequent visit, which should not be longer than once every fourteen days.

3. Secure as many patients or suspected patients as possible to visit the clinic—all members of a patient's family, all members of families in which a death has occurred from tuberculosis; watch for children with enlarged glands, and decidedly under weight and below par. This is to be done systematically for every township; and the nurse should have a definite schedule of dates for every town and township.

4. The nurse should visit every home where a case of tuberculosis is reported to be, and every home where a death from tuberculosis is reported, to ascertain the home condition and to teach the members of the family the necessary prophylaxis; to leave literature and sputum cups.

5. The nurse should be required to teach the patient the following:

(1) To use sputum cups.

(2) To cover mouth and nose when coughing.

(3) To use separate dishes and drinking vessels.

(4) To boil clothes and bed linen five minutes before being washed or sent to laundry.

(5) To sleep alone (a) on a sleeping porch, or (b) in a room with two or more windows open.

(6) To see that person who waits on patient washes her hands thoroughly with soap and water after handling patient, bed linen, sputum cups, or anything else about the patient.

(7) To see that children do not play on floor of patient's room, or lounge on his bed.

(8) See that patient's room is screened against flies.

(9) See that floor in patient's room is bare and windows are without curtains.

(10) Ascertain general sanitary conditions of home.

(11) Ascertain if patient is able to work a part or all of his time.

(12) See that patient remains in bed when temperature reaches 100 or more at any time during 24 hours.

6. The nurse should visit every school in the county and present the subject of tuberculosis to the school children. And she should solicit

the help of the school superintendent and teachers in locating cases in the homes of pupils.

7. She should make appeal to associated charities and church societies to report suspected cases.

8. She should be required to keep accurate daily records of her work and time.

The county health officer in charge of the clinic should be familiar with tubercular people, and with the diagnostic technique necessary to give intelligent advice to the clinic patients. He should stress the history and symptoms, and wherever they appear suspicious, if he cannot find any physical evidence of the disease, he should refer the patient to the State Sanatorium for expert advice. The paramount thing to do is to get them interested in their condition. This is just as important for the diagnosed cases as it is for the suspected ones.

(I am indebted to Miss Rose Ehrenfeld, Director of Public Health Nursing for the State, for her assistance in making out the schedule for nurses.)

GENERAL SESSIONS

TUESDAY, APRIL 15, 8 P. M.

Dr. Thompson in the chair.

Dr. Thompson: We have with us tonight the Governor of North Carolina, who has graciously consented to speak to us. I will request Dr. J. Howell Way to present him briefly to the audience.

Dr. Way: *Mr. President, ladies and gentlemen*—North Carolina, you will all blushingly admit, is a great State. It is great in its splendid and patriotic men; it is great in its glorious women. It is great in its fine children, in its fine climate, its fine land, its fine homes, its fine social life. It is the greatest of all the great states of this great American nation. Ladies and gentlemen, I know that those of you who know the splendid gentleman who is now our Governor will agree with me in saying that he is a great Governor, in every respect worthy of the great people and the great State whose chief executive he is. It is with much pleasure and pride that I present to you our chief executive, our Governor, Honorable T. W. Bickett, the son of a North Carolina doctor, himself a great lawyer, a great statesman, and a Governor who governs his people not only wisely but well.

ADDRESS BY HIS EXCELLENCY, T. W. BICKETT, GOVERNOR OF NORTH CAROLINA

Mr. President, ladies, and members of the North Carolina Medical Society:

I certainly enjoyed the introductory remarks of my friend, Major Way. I feel about it somewhat like Senator Spooner, of Wisconsin, was said to feel about a certain matter when an Englishman came to this country and turned up at Washington, and said to Spooner that he wanted to employ the best lawyer in the United States. Spooner said, "Well, you have come to the right place. We have him right here." "Who is it?" "It is Senator Albert J. Beveridge, of Indiana. He is the biggest lawyer in the United States." "Well," said the Englishman, "that is interesting, but how can you prove it to me?" Said Spooner, "I do not have to prove it at all, Beveridge himself will admit it." So I am just disposed to enter a plea of *nolo contendere* to the remarks of my friend.

I remember reading some time ago a little poem entitled "Songs That Are Never Sung." It attempted to describe those sentiments that lie between the black keys and the white, that never can find expression. In view of Dr. Way's remarks, there is a very strong temptation to me to allow this speech this evening to go down in the annals of this Society as the great speech that was never spoken, along with the songs that were never sung.

I remember seeing some time ago a picture that made an impression upon my mind. A farmhouse was in the background. The light of the fire could be seen in the red glow of the window. In the foreground was the country doctor in an open buggy. There was a tense look on his face, the wind was blowing his whiskers, he was leaning far over the dashboard urging on his faithful steed. Far above him, pointed to the same farmhouse, was a stork, and the picture was called, "A Hurry Call." I got one this evening, calling me to Charlotte, to be there in the morning at ten o'clock to pass in review that grand company of immortals that smashed the Hindenburg line. I am going, although it will necessitate my riding all night. And so, without attempting the formalities of an address, I am just going to make a short, unconventional talk to you doctors tonight.

In the first place, I think highly of the personnel of this Society. I congratulate you on the magnificent speech that your president made this morning. I heard about it as soon as I got to Southern Pines, and I have been hearing about it ever since. The trouble is that, if I were disposed to make a speech tonight, or had been disposed to do it, I would refrain, because Dr. McBrayer, who acts as my private physician on public occasions, warned me before I came in that if I attempted to compete with Dr. Thompson I would break down my constitution. I have no disposition to do it. He and I campaigned together this summer away up there in the mountains where apples and rattlesnakes grow ripe together. I know something of his prowess, and the thing that I know best and like best is the fact that he not only preached patriotism from one end of the State to the other, but he set a glorious example by sending two boys, both under military age, to France. That is what I call a good prescription. The truth of the business is, that after associating with him for a number of years, appointing him to almost every job at my disposal that did not pay much, I have come to love Dr. Thompson better than my conscience permits me to love any Republican.

If there is any class of people in the world with whom I feel perfectly at home, it is the doctors. According to my very best recollection, a doctor is the first man that I ever met. As said by Dr. Way, I am

the son of a country doctor, and I know at first hand something of the heroism and of the hardships of a doctor's life. The finest picture of a country doctor that I have ever read is that of a general practitioner, Dr. William MacLure I believe is his name, in "Beside the Bonnie Brier Bush." I read that story once every year, in loving memory of the country doctor whose name I bear, and, upon becoming Governor of this State, I resolved to show my interest in your profession and in the noble, unselfish work that you are doing, not by words, but by action, and I resolved to strengthen your position and back you up by legislation in every possible way. And so, in working with both sessions of the General Assembly, I did everything in my power to advance the cause of the true physician and to stamp out quacks and quackery in every form. It is mighty hard to do. It is mighty hard to get rid of the quacks and the quackery. They spring up like the tares amongst the wheat. I suppose we have always had them. I know they had them in Biblical times, because away back there in the days of Asa, we read that when Asa was an old man he was afflicted with many diseases, and turned not to the Lord, but sought the physicians, "and Asa slept with his fathers." Evidently the quacks abounded in Asa's day.

I have noted down here a few of the laws that have been enacted. I shall not read them all nor discuss them all, but I shall run over them very briefly, in order that you may have before you a general comprehension of the work that we have tried to do.

I think the most important act that was passed by the General Assembly of 1917 was the act making it a crime in North Carolina to sell or offer for sale, or to advertise for sale in any newspaper or magazine circulating in North Carolina, any patented or proprietary medicine purporting to cure an incurable disease, a disease that the American Medical Association had pronounced incurable. That was a tremendous stride in the right direction, and I am satisfied that it will save the lives of many people, and I know that it will save yearly many, many thousands of dollars to the people of North Carolina. I hope that that law will pave the way for a law requiring the open formula for all patented and proprietary medicines. That is the logical step that should next be taken.

I think the next most important law is the one proiding for the examination at stated intervals of all children who attend the public schools in the State, to the end that any incipient defect, mental or physical, in the child may be discovered in time and the proper treatment given. We had to make an entering wedge. We did well to get

anywhere with this law two years ago. The appropriation was inadequate, but the law worked so well that the General Assembly of 1919 multiplied the appropriation by five for the purpose of carrying out this law, and there is the added provision, which is absent in the original act, that where a defect is discovered which is deemed to be curable, then the proper treatment shall be given, independent of the wholly collateral fact that the parents of the child may be unable to pay for the medical treatment or the surgical operation necessary in the case. Because, I took the position before the General Assembly, and it was on that principle that the law was passed, the State of North Carolina, as a State, from the standpoint of humanity and of economy as well, cannot afford to allow a child to stagger through life under the handicap of a physical or mental defect simply because the parent of that child may not be able to pay for the necessary medical or surgical treatment.

The next law was the law providing for the inspection of hotels and restaurants. I think that the law grew out of the suggestion that you have often heard made, that "if you want to enjoy your dinner, do not look at the inn kitchen." At any rate, it is a very wise and salutary law, and, I am informed, is accomplishing good results.

The next law passed by the General Assembly of 1917 was the law for the prevention of blindness, by providing, without cost, a solution to be applied to the eyes of children as soon as they are born, in order to prevent blindness. That is a most wise and most humane piece of legislation.

The fourth law of 1917 was the act providing for rural sanitation, coöperative rural sanitation. You know it was astonishing to the people of the United States and of North Carolina when it was brought out that there was so much typhoid fever and other kindred diseases out in the wide country, and that it was because the proper sanitary measures were neglected in the country, whereas they are looked after to a certain extent in the centers of population. Thus rural sanitation is exercising a most beneficent effect upon the rural population of the State.

We come down to the acts of 1919, and the most important of these acts, in my opinion, is the act that makes it impossible for any incurable mental defectives to perpetuate their own species. When I advanced that proposition before the Conference for Social Service, some two or three years ago, and I believe some of the physicians of the State had advanced it before that time, people lifted up their hands in horror, and there were many members of the General Assembly, when the proposition was made in my biennial message this year, who stood

aghast at the thought of any such legislation. But I called those members down into my office, and put the question squarely to them, man to man and face to face, as to whether or not the State of North Carolina could justify its position in refusing to issue a marriage license to an incurable mental defective and, at the same time, permit the unlimited and unlawful perpetuation of these infirmities. We cannot build houses fast enough in the United States and in North Carolina to take care of these unfortunate victims, and the only way in which we can hope to arrest the alarming increase is to stop this muddy and murky current at its source.

The next act was that increasing the appropriation for the physical examinations of school children, to which I have above referred.

Another act of vast importance to the State is the act providing for sanitary toilet facilities in all of our centers of population, under plans and specifications approved by the State Board of Health. I cannot conceive of any piece of legislation that would tend more to prevent the spread of infectious diseases than this great act, which was prepared by the able secretary of your State Board of Health, and to the passage of which I lent every assistance possible.

There is a series of four acts that deal with social vice—and it needs to be dealt with firmly, boldly, and without wrapping ourselves in a mantle of false modesty and blinding our eyes to facts that are leading our sons and daughters down to death and hell. We have to grapple with these facts, and these four measures deal with this situation in a practical, wise, and humane way, and their passage is due not only to the wisdom of the medical fraternity in North Carolina, but to its moral stamina in backing up these measures—every one of them.

These make a body of twelve acts, all told, which have been passed by the General Assembly during my administration dealing with questions of public health, and I trust that they will add much to the armamentarium of your fraterniy.

Now, just a word. I could not go away without acknowledging the debt that this State owes and that these United States owe to the medical fraternity of North Carolina on account of the patriotic work that you did during the great war that has just been so gloriously won. When the call to arms sounded, almost every able-bodied physician came forward and said, "Here am I, send me." There are approximately twenty-two hundred physicians in the State. Seventeen hundred and fifteen of them volunteered. That statement is more eloquent, those figures—seventeen hundred and fifteen volunteers out of a total of twenty-two hundred, from the cradle to the grave—are a more eloquent testimonial to the courage and to the patriotism of the doctors of North

Carolina than anything that could be said by any orator, from Demosthenes down to myself. Four hundred and sixteen actually went into the service in uniform. The others did volunteer work at home. Twenty per cent of your members put on uniform. Three and one-fifth per cent of the population, as a whole, put on uniform. Five times, nearly six times, as many doctors in the state, in proportion to their numbers, put on uniform as any other class of people. And it is not to be wondered at, my friends, because, after all, a sort of divine self-forgetfulness is the birthmark of your profession. If I had dramatic genius I would write a scenario picturing the daily life of the average doctor in the State, and I would call that picture "Service."

I am not generally able to appreciate statuary, for my education has been somewhat neglected in that matter. But there is a piece of statuary in the rotunda of Johns Hopkins Hospital that I can never forget. Doubtless every one of you has seen it. It is a statue of the Christ, the Great Physician. In heroic proportions He is standing there. A sick man is kneeling at His feet, and, with a touch of genius nothing less than God-like in itself, the artist has carved into that marble face a look of ineffable pity, and underneath are written these words, "Come unto me, all ye that labour and are heavy laden, and I will give you rest." I like to think always of the Man of Galilee as the Great Physician, for certainly the divinest of all the arts is the healing art. As I said, I know at first hand, from living in a country doctor's home, the hardships of the life. I know that the cares are many and that the rewards are meager, but I doubt not, I doubt not that at some time and somewhere every true physician will hear ringing in his ears the celestial statement, "Inasmuch as ye have done it unto these little ones, ye have done it unto me."

THE DISABLED SOLDIER—LESSONS FROM CANADA'S EXPERIENCE

T. B. Kidner, Washington, D. C.
Special Advisor, Federal Board for Vocational Education

Mr. President, Ladies and Gentlemen:

It is a great honor for a layman to be asked to address a meeting of medical men, and I appreciate it very much. I appreciate it also from the fact that it is a very great pleasure for an Englishman who has lived for many years in Canada, and is now in the employ of the United States government, to be here on this occasion to talk about some of the problems of the war and their solution.

When England had its back to the wall, this great country came in and with that punch which the United States was able to put into the war, together we were able to defeat the common enemy. Today in our common problems following the war the Allies are learning from each other, helping each other, just as they did in the business of winning the war.

I pray that the two great branches of the Anglo-Saxon race may always, from this time forward, go hand in hand and on in the good work of cleaning up the waste places of the world. For, as some one has said, wherever the Stars and Stripes, or the Union Jack of Old England flies, there may a man be sure that his wife and his daughter may dwell in safety, and truth and justice will reign.

My topic tonight is one which is in the minds and hearts of the world today—The Disabled Soldier—what we shall do with him and for him? This is not a new problem. We have had disabled soldiers from all previous wars, but from the magnitude of this war the problem has been brought home to us as never before, and tremendous attention is being paid to it. Today the nations are all agreed that we must not have, as we have had from previous wars, a great number of disabled men, for whom we shouted and waved flags, and to whom we gave medals, and a small pension, and then forgot all about them in the after years. Even Germany set out to prevent that kind of thing. For our men who fought for us and our homes in the great war we must do everything we can, to help them in every way to realize that they may look forward once more to the joy of living which comes only from satisfying work, usefulness for themselves and helpfulness for themselves, and happiness and strength for the community also.

There are a great many difficulties in the problem of the disabled soldier. One of the great difficulties is that the training of soldiers is away from self-responsibility. A soldier must obey; a soldier must be, as it were, a part of a huge machine. You know the reason why. So he is told when to get up, he is provided with food and shelter, told when to go to bed, etc. In short, he takes no thought for the morrow, and when he comes out of the army, in a great many cases, he is at a loss to know what to do, and one of the problems is to demilitarize him. He does not fit in at first to the ordinary, average conditions, especially if he has been serving as a soldier for a long time.

Another of the difficulties in dealing with the disabled soldier is that naturally he is inclined to self-pity. "I have done my bit and suffered, and the country should look after me for the rest of my days," is his feeling. In that attitude he is all too often encouraged by the mistaken kindness of the people dealing with him at first (for it will not

last very long after the shouting is all over). I agree with you that nothing is too good for our men when they come back, but we must be like wise parents, who may give their children candy occasionally but do not allow them to feed on it all the time and every day. I think that instead of pitying the disabled man and encouraging him to feel that the country owes him a living, we should feel that the country owes him an OPPORTUNITY TO EARN A LIVING. We should assist him in every way to earn that living and help him to become once more a self-respecting and cheerful citizen, and that is the only way he can do this.

Too much attention and pity will not do. Men usually do not like that kind of thing; even if they do it is bad for them. They must be treated as men and not as babies. They must be helped to stand on their own feet as soon as possible.

The title which your secretary put down for my paper was "Lessons from Canada's Experience." Canada got into the game quite early. The Prime Minister cabled that if England went to war with Germany, she could "count on us." Six weeks after the war broke out on August 4, 1914, we had 35,000 men on the sea on the way to the front. I am proud to say that some of Canada's Army medical men were in that battle of Mons and that dogged retreat in which "the contemptible little English Army" stemmed the tide of the invasion of Belgium.

By the middle of 1915 our wounded men began to come home, and we had to make provision for their care and treatment. We had very little knowledge upon which to base our plans, but soon a string of convalescent hospitals was established from the Atlantic to the Pacific, for we found that the men wanted to be near their homes and the home community wanted them.

Welcome committees were established and various agencies, public and private, coöperated in the work. One of the first things to arrange was the provision of employment for the men after their restoration to health. In this, the provincial governments coöperated heartily with the federal authorities and Soldiers' Aid and Employment Commissions were organized in all the Provinces.

Then we began to think of the new thing we were hearing of in France—the vocational reëducation of those men so disabled that they could not go back to their former occupations.

Here again, we had even less to go on than we had in making our plans for convalescent hospitals, but we had nearly a thousand disabled men back at that time (the end of 1915) so we set out to discover their needs, and learned many interesting things. We discovered, for instance, that the disabled from war are not what one is apt to expect

—chiefly men who have lost legs, arms, and eyesight. In a large majority of cases, men disabled from war are as whole as those of us in this room, from all outward appearances. To look at them, they seem all right. Instead, then, of finding large numbers of men who had lost a leg, or an arm, or their sight, we discovered more men disabled by disease from the rigors of the field of war.

The returns of our United States casualties bear out our first discoveries in Canada. With a list of wounded well over 200,000, there are only about 100 to 125 blinded men, and about 3,200 who have suffered the loss of an arm or leg.

May I say here (though you probably saw it announced by the Surgeon General of the Army last week) that we should be thankful that there is not one case in the American army in which the man has lost both arms and both legs. We have one case in Canada and you will see him a little later in the pictures playing tennis. We have only one, thank God!

It did not seem, therefore, at that time that we need provide a very elaborate scheme for the men who had been blinded or who had lost limbs, because we found so few of them, and we found also that comparatively few of our disabled would be unable to return to their former occupations. So we began to provide work for the men who were in our convalescent hospitals, irrespective of whether or not they were likely to be able to return to their former occupations on recovery. This was the beginning of a great scheme of occupational therapy and curative workshops in all our hospitals. From the beginning the effect on the men was good. Some of them were being a little bit spoiled by hero worshippers, and disciplinary troubles sometimes ensued. But that sort of thing largely disappeared when schemes of occupation were introduced.

Some of the medical officers were not very enthusiastic at first, but today it would be difficult to find one who is not a firm believer in occupational therapy—the curative value of occupation for the mind and for impaired bodily functions. Moreover, many men actually improve their earning capacity by adding to their knowledge or skill during what would otherwise be idle, tedious and unprofitable hours in the hospital. We put in classrooms, simple workshops, gardens and poultry houses at each hospital. We put the work first in the orthopedic hospitals; later on, considerably later, we put the work into the sanatoria where our tuberculous soldiers are treated, and from coast to coast today, wherever our disabled soldiers are being treated, work of various sorts is provided. Time is made to pass more pleasantly, more profitably, and the men are restored to health more quickly and

are more useful after coming out. That has been one of the things which we have learned and which I hope we shall carry over to our civil hospitals. Because of their experience in the army hospitals, many of our army doctors have gone back to their own civil practice determined to apply these therapeutics in their own hospitals.

But we discovered other things; for instance, that many of the so-called war problems are national problems which you members of the medical profession know quite well. Take the question of tuberculosis. It has been announced that more than fifty thousand men were refused by the draft boards, upon their first examination, for tuberculosis alone. The medical profession knew of this widespread problem, but because men were needed for soldiers, public attention has been focused on this and similar problems, and I believe I am right when I say the anti-tuberculosis movement has received a tremendous impulse. At present about 6,000 men are being treated for tuberculosis in army hospitals, and many discharged tuberculous men are being cared for by the War Risk Bureau in civilian and Public Health Service hospitals.

In your president's address this morning he spoke of the illiteracy which was discovered in the draft. I am told that in one camp forty-seven per cent of the draftees were found to be illiterate—and this was not a colored camp, either. We are finding out that in our schools (and I speak of Canada, as well as the United States—thank God, that is only an imaginary line across the map) we have sometimes missed fire, and that too many of our boys get out of school at too early an age, or miss school altogether. We are correcting it a little by the classes for the illiterates, and classes for the foreign born who cannot speak English.

But, after all, we come down to the real problem, which is not a large one in point of numbers, but is a difficult one in point of complexity, as to what shall be done for those men who by reason of disabilities incurred in service cannot go back to their former occupations with efficiency, and vocational reëducation is necessary here as in other warring nations. It is a very prominent and important part of the reconstruction work. One of the things we had to settle first in Canada was the question whether vocational reëducation for a new occupation should be offered to every man. It was discussed and pointed out that just as a pension is not a reward of valor but simply an attempt on the part of the country to do justice to its disabled warriors, neither was this vocational reëducation to be considered as a reward of valor, but should be offered to the men just as a pension is awarded, as an act of justice to make up for the loss suffered in the service of the nation.

So it was decided that reëducation at public expense should be given only to those men who were unable to return to their former occupation. The proportion of these is small.

For every million men in the field about one to two per cent will need reëducation for new occupations. This is not very serious in point of numbers, but it is difficult in many ways. How do we set about this thing? Some of us thought at first, a great many people thought, that it would be possible to make a list of disabled in one column and list what they could do in another column. Officers of the Federal Board are often asked what are the occupations to be recommended for a man who has lost his right arm at the shoulder, or suffering from this, that and the other. My answer today, after four years' experience, would be, "I do not know." Until we see the man, and with a doctor present who is capable and qualified and interested enough to discuss the man's future, and the man himself present, and with the advice of some man who knows local economic conditions where the man is going to live, his industrial experience, his wishes, his physical and mental possibilities; then and then only can we institute serious steps to direct the man to some new occupation that he will take up and be trained for and carry on successfully.

In the last analysis, the success of any scheme of training the disabled must be judged by the ability of the man to hold his position—to carry on in the occupation for which he has been trained—when the feelings of compassion towards our war-disabled have become dulled. Therefore, the aim is to so train the disabled soldier or sailor as to render him efficient in the occupation to which he has been guided, so that he holds his job, not from the pity of his employer, but because he can "deliver the goods."

Every case is considered on its merits in the light of everything that can be discovered about the disabled man. If possible, we do not "scrap" the man's former experience, but endeavor to provide training in some related line of work.

For instance, one of the early cases I handled had been a structural steel worker. He had had a bad gunshot wound in the knee and had a stiff leg, and could not climb as he had done. He had worked on some of the highest buildings in America. He was a bright, brainy chap, and eight months in a technical school made him an excellent man for his old firm, but he used his head instead of his hands in his new job. We build upon a man's previous education and training; if that is not possible, some allied occupation, something related to his former occupation, is selected; if that is not possible, something new, but within the capacity of the man, is selected. Of course, care must be taken

not to train more men for any given occupation than can be absorbed in it; neither should men be trained for industries that are in danger of dying out. Often it is quite possible to train men for new industries.

In Great Britain, for instance, diamond grinding is now a flourishing industry; having been introduced to provide suitable employment for men suffering from a leg disability, as it is a job at which men sit to work. Formerly almost all diamond grinding for England's trade was done in Holland and Belgium, and the establishment of this industry for disabled soldiers has thus been a benefit to the country in other ways.

If possible we always try to direct a man toward a better job, and in Canada today 70 per cent of the disabled men who have been reëducated are earning more money than before going overseas and being disabled.

There were many difficulties in France in getting the men to accept training, and in England also. Canada had a little at first. I said, just now, that a great many men think the country owes them a living, and a number were afraid to take vocational training because it might cut down their pension. We tackled that problem in Canada and changed the pension regulations and made a definite statement that the man should be pensioned on his disabilities in the open labor market, and any increase in his earning capacity from the training which he undertook to overcome his handicap should not result in a reduction of his pension.

In addition we had to consider how the man's dependents were to be maintained during his training, and that brought up the question as to whether or not the men should be retrained in the army and receive army pay for themselves and the usual allowances for their dependents.

Canada came to the conclusion that as soon as a man's medical treatment had reached finality, he should receive his discharge from military or naval service and pass under the care of a civilian body to receive his vocational training, should he require it to enable him to overcome his handicap and take up some gainful employment. A scale of pay and allowances for the man and his dependents during his training was arranged, so that a man would have no financial worries while he was learning his new occupation..

The same plan was adopted by the United States in the Vocational Rehabilitation Act, of which I must tell you directly.

I am sure you will be interested to learn that there has been no trouble in the United States to get our disabled men to undertake training. There are several reasons, I think, for this; first, our men are all young and we have not the serious problems of France and England,

where thousands of men past forty-five have been seriously disabled and naturally are reluctant to try to enter some new occupation; second, the greater realization of the value of education among our American boys; and, third, the generous scale of pay provided by the government for men during their training courses.

The work is only beginning, but our returns show that 1,460 men have already begun reëducation courses for some new occupation, from Maine to California and from the Canadian border to the Gulf. About 2,500 more are under consideration and will probably commence training within the next few weeks. As the act was only passed and approved by the President at the end of last June, it will be seen that a great deal of work has been done by the various authorities to bring about this result.

No account of the work being done for our disabled soldiers should omit full mention of the splendid work being done by the Surgeon General of the Army in the Reconstruction Hospitals, in all of which there is complete provision for all kinds of occupational therapy—from the simple "ward occupations" to the well equipped curative workshops, classrooms, etc. Men can "brush up" in their studies, or undertake new branches, in a very wide variety of subjects. In one army hospital I visited recently, out of 1,650 patients, 71 per cent were taking work in the classes every day. The medical testimony was all in favor of the work and the men were certainly happier and better for being occupied in useful studies or interesting work of some kind.

When a man receives his discharge from the army or navy, he passes under the care of the Bureau of War Risk Insurance at Washington, which furnishes him with monthly compensation for his disability, and also provides him with any artificial or surgical appliances, or medical care, which he may need.

The Federal Board for Vocational Education works in close coöperation with the Bureau and provides vocational training for any man disabled in service who needs training to overcome his disability. During the time he is training, a disabled man will receive, partly from the Bureau, and partly from the Federal Board, not less than $65 monthly, if he be single, and additional payments if he be married or have other dependents. In addition, the Federal Board pays the cost of tuition, books, materials and other incidental expenses of the training course.

You will see, therefore, why we have no difficulty in persuading our American boys to take reëducation. Of course, it is going to cost money to do all this, but instead of an aftermath of men begging at street corners and filling up our almshouses and leading useless lives—just awaiting death—we shall have useful citizens. In the end it will be found

to be one of the cheapest ways of getting over the problem of the disabled that could be devised, cost what it may at the beginning.

You will ask where the men are being trained. The federal board has not established any schools. The problem is not a large one in point of numbers. There was no necessity to establish special schools. The United States was well off in that respect. There is said to be about three hundred millions invested in schools, and all those are open to our men, and when it is all over there will not be a lot of useless plants to be disposed of. Also, time was a problem. There was no time to provide special institutions if the men were to profit by them. So men are being trained all over the country in existing institutions, and being trained for a great variety of occupations. In Canada the disabled men are being trained for over two hundred different occupations. This is accomplished by using not only the schools but industries themselves. Men are being placed, with the help of the manufacturers, and of labor unions, too, and are being trained actually on the job under the best possible conditions.

Two or three more points and I will stop and show you some pictures which may be of interest to the medical profession. I want to speak of one important thing as a result of our experience in this war. What can we carry over as lessons learned from dealing with human wastage of the war? We must have more vocational training in our schools; I am sure we must change our methods of ordinary education, and also see to it that it is made universal.

Our national health, I am sure, needs looking after. It was a revelation to us all, I am sure, to learn of the number the draft boards turned down as unfit. I am quite sure all our public health movements will be helped by this war experience. Most important of all is the reëducation of those so disabled in industry as not to be able to return to their former occupations.

I want to delay you just a minute to quote from a book which recently came into my hands in Washington.

"If the United States maintained an army of 1,500,000 men in the field, year after year, and this army was engaged in constant hostilities, its annual output of permanently incapacitating disablements would just about equal the number of those resulting annually from industrial accidents, despite the advance made in safeguarding workers, and despite the constant preaching of 'safety first' to the workers themselves.

"The estimate of 14,000 industrial accidents resulting in permanent disablement annually does not take into consideration the ravages of tuberculosis. This disease is recognized in many cases as having direct relation to conditions of employment or to conditions in living for each

wage standard, and so conditions of employment are responsible. The army recognizes a case of tuberculosis as permanent disability and discharges men who have contracted it as unfit for military service. If tuberculosis and other occupational diseases were counted as permanent disabilities, it would be found that the annual output of permanently disabled from industry would equal, if it did not considerably exceed, that from an army of more than 2,000,000 men in active campaigning.

"We are appalled at the wastage of war, yet we are subjected to the annual drain upon our man and woman power in profound peace equal to that created by a colossal army engaged lately in the business of destruction."

And quoting from another place:

"Testifying before the joint committee on education and labor of House and Senate, on December 11, 1918, when the Bankhead-Smith bill for the rehabilitation of the industrially disabled was under consideration, Mr. Arthur E. Holder, member of the federal board (representing labor), said in part: 'During the last five years ending December 31, 1917, 65,327 men (no women included) in the mines, quarries, and on the railroads of the United States have been killed, and 980,764 have been permanently injured; 13,065 were killed annually and 196,153 disabled—this from three of the most hazardous occupations. The other two are longshoremen and structural steel workers.'

"Representative Towner: 'I am told that the industrial accidents in the United States alone within the last twenty-five years annually totaled greater than all the wars that had occurred in that period in all the world.'

"Mr. Holder: 'The only really accurate data we have is in regard to mining and transportation. For the five-year period ending December, 1917, a total of 16,526 workingmen were killed and 49,000 injured in our mines and quarries. For the same period the railroads of the United States killed 48,801 and injured 931,764. Of the killed and injured more than seven out of eight were railroad employees. My authority for these figures for mines and quarries comes from the Bureau of Mines of the United States Department of the Interior; and as to transportation accidents from the Safety Division of the Interstate Commerce Commission.'

"The work of retraining disabled soldiers and sailors will obviously come to an end in a few months or years. Meanwhile, there will have been perfected an organization highly skilled in the process of salvaging residual capacities of men. Shall it be disbanded, scrapped, just as it has accumulated experience in handling thousands of cases and has brought it to the highest point of efficiency? With its vast

potentialities for the alleviation of human misery and banishment of poverty, shall it be thrown aside when there is yet so much to do? By no means. It will be devoted to the rescue and vocational rehabilitation of those victims of the industrial processes, who otherwise would remain human wrecks and economic burdens."*

No longer must we put aside our disabled from industry and let them go to fill up the ranks of the beggars. We must train them and put them on their feet again, so that we can get rid of this terrible wastage. It is clear that we have a big work ahead of us.

The words of a great French writer apply equally to the disabled from war and the disabled from industry. "The nation should not only protect its wounded or disabled by giving them the means to earn their livelihood by work, but it should also strive so to manage its work for the disabled that the victims may come out of the disaster improved morally, socially, and economically."

The rehabilitation of our disabled soldiers is a great work and is one in which every thinking man and woman should be interested. Your own noble profession must, of course, lead in this work and also in the coming task of the rehabilitation of the victims of industrial accidents and disease. It is noble work, and may God speed you in it.

WEDNESDAY, APRIL 16, 8 P. M.

EXPERIENCES WITH THE COLORS

MAJ. M. H. FLETCHER, ASHEVILLE

Mr. President and members of the Medical Society of the State of North Carolina:

I shall only attempt to give some of my impressions of "War Surgery." Most doctors, and the laity in particular, have an exalted and exaggerated idea of "War Surgery," also of the benefits one gets from experience in the service.

One thing in particular to which I desire to call your attention is that when we think of the destruction, casualties, injuries or anything at all in connection with our recent "World War," we must think in large numbers, so large, in fact, that the average mind can scarcely grasp them.

When the history of the war is written, the list of those unaccounted for, particularly the losses from the so-called Spanish flu, for want of a better name—will be far in excess of the largest number that has

*"The Redemption of the Disabled," by Garrard Harris (Appleton's).

yet been placed upon it. The last report placed the total, in the unaccounted-for list, at five thousand five hundred, but when the whole story is told it will approximate nearer ten thousand.

Overcrowding and lack of ventilation on the ships going over will have to answer for a high death rate from influenza and an increased virulence of the infective agent. When you think of how utterly inadequate the facilities were for handling the sick and the dead in civil life at home, you can multiply this by ten, and you will have some conception of how totally inadequate the facilities were for handling patients at the ports of debarkation, where the flu cases were numbered by the thousands.

Our own hospital center, consisting of four base hospital units located at Kerhuon, five miles from Brest, was functioning as a debarkation hospital, receiving influenza cases three weeks before it was supposed to take patients at all. We furnished shelter for twenty-eight hundred and fifty medical cases when we were supposed to be a surgical institution. We had sent two operating teams (a team consisting of three surgeons, one nurse, and one orderly) to the front. At that time Base 65 was the only one of the four units on the ground. We were short of everything in the way of equipment, drugs, and most things necessary to make the sick comfortable. We went over without equipment and our outfit at this time consisted mostly of what was commandeered at the docks. Surgeons made good medical men, and everyone did what he could to make the sufferers comfortable. We were short of doctors, nurses, and attendants of every kind. Every doctor became an expert in the diagnosis of meningitis, pneumonia, empyema, measles, etc. There was not much demand for the highly specialized specialist in this or any other emergency which came under my observation during the service overseas.

On our boat, the *Kronland,* which landed in Brest September 11th, there were a number of dead when we reached port. The flu gained in virulence on the boat from its inception. This was due primarily to overcrowding; the boat was loaded much beyond its capacity. The ventilators were not working, the men were not undressed for fifteen days, the life preservers, which everyone was required to wear constantly, were filthy, and could not be removed, the portholes were always kept closed, by an order from Washington, we were told. Ship odors are always bad, and under the insanitary conditions which prevailed on this boat they were intolerable. The only salvation was an occasional breath of fresh air on deck, and with the decks covered with rafts, lifeboats, etc., deck space was at a premium.

We sent Naval Base No. 1, the night we landed, thirty-two cases of pneumonia, officers and men, and of these twenty-seven died.

Our first and important work was to handle the flu cases off the *Leviathan,* 57th Pioneer Infantry from Tennessee, most of them, and about one hundred were dead when this boat landed at Brest on this trip. Many died on lighters, ambulances, and stretchers before they reached the wards, where a comfortable bed was provided. We had good woven wire springs, mattress and pillows; three blankets for each patient, but no sheets in the early rush. Forty patients were placed in each ward, and in one day and night we admitted twelve hundred. It rained all the time, and the mud was our greatest hindrance.

It was impossible for our force to give the necessary attention to these patients, some of our doctors having from two to six wards to look after. Some of our surgeons, orthopedists, eye and ear men, men specially trained to do brain surgery, were doing duty as adjutants, registrars, receiving officers, sanitary inspectors, etc. After the flu subsided we had more doctors than we needed sent to us from the casual camps.

The history of the pneumonia, meningitis, and its various complications will be written by men more competent than the writer. The meningitis situation, I am sure, was as well handled in Base 65 as was possible in any camp, or any other hospital for that matter. We had good laboratory men, the contacts were isolated, and otherwise taken care of. To rid a camp of meningitis it is necessary to make a diagnosis early and, like everything else, when you know how, it is easy. With the stiff, sore neck, discernible with motion, the eruption which is nearly always present when you examine for it carefully, the peculiar restlessness, anxiety, fear, and, finally, confirmation by lumbar puncture, were the important symptoms. The spinach green vomit, on which I had learned to lay so much stress during an epidemic in 1888, in my own locality, was absent in about 50 per cent of the cases. Repeated examinations were made from secretions from the ethmoidal sinuses, looking for contacts and carriers.

I became a convert to the use of the mask as a preventive for the spread of the influenza. That you have to inhale or come in direct contact with the influenza germ in order to contract the disease, there can be no doubt. To cough or sneeze during an epidemic without the use of the handkerchief or mask is criminal; but to use the mask improperly or irregularly to prevent germ contact will not do the work. The chain is only as strong as its weakest link, and to leave the gap down is fatal. In army life, however, it is not so difficult to enforce an order of this kind.

I have every reason to believe that we stopped the spread of the influenza on the boat on our return trip home. Flu broke out on ship the fourth day out, on the fifth day we had fifteen new cases, on the sixth day thirty-five. An order was issued requiring everyone on board ship to wear a mask, and on the tenth day we did not have a single new case. The only other precaution taken was to spray twice daily the upper air passages with dichloramin T.

In Base 65 we had about forty cases of empyema, all complicated, of course, with pneumonia and all desperately ill; our mortality was about 20 per cent. Two had empyema on both sides. All were drained under local anæsthesia and diagnosis was invariably confirmed at time of operation by trial syringe, and repeated after skin incision had been made. Resections were the exception, rather than the rule, because it put additional nerve strain on the patient, requiring longer time. Resection is a painful operation under local anæsthesia. Most of the pleurotomies will, I think, have to have a resection done later in order to maintain drainage long enough to effect a cure.

The use of the Dakin Solution in empyema seemed to be of greater benefit than any irrigating agent which I had previously used. We did not keep our patients long enough to form any definite conclusions, or effect cures. We got them out of bed early and sent them back to the States as ambulatory patients; just how long they had to remain in hospitals on this side, I do not know.

I had an opportunity to observe for two months at Fort McPherson, in June and July, fifty cases of empyema, all of them resections. I know many of them were cured—some in an apparenty short time—with the Dakin irrigations. I have some positive convictions about the radical operations of resection of more than two ribs, such as the Estlander and other mutilating operations which have been frequently resorted to in the past, in order to make the side contract and fill in the cavity. On the other hand, there are serious objections to the simple pleurotomy with a tight fitting tube, making a sucking wound.

Our hospital suddenly changed from a 98 per cent medical to a 76 per cent surgical institution about three weeks before the armistice was signed. We got wounded from nearly every hospital in France, some as recent as four days after they were wounded. Practically all of the surgery, such as amputations, debridements, fixation of limbs, brain surgery, etc., was done in the dugouts and evacuation hospitals within twelve hours after injury.

When we began to function as an embarkation hospital, we had four base hospital units and many casual officers, a staff of one hundred and fifty-seven doctors, and three hundred and fifty nurses at one time,

more than we needed, and every kind of equipment imaginable. We had nine hundred bedridden surgical cases at one time, to be dressed once or twice daily, and six hundred who came to the dressing station each day. Every kind of wounds. One of our orthopedic consultants reported that there were five thousand fractured femurs in the Brest area alone, when as a matter of fact there were only six thousand among all the American wounded. At that time we had less than two hundred and fifty, and ours was by far the largest of the four hospitals in the area mentioned. Practically all the fractures were compound, all the wounds were wide open and all were infected. All the soil of France is infected with the tetanus and colon bacillus, and perhaps others. No case was operated or reoperated without an immunizing dose of antitetanus serum of 1,500 units. We had at one time one hundred and sixty-seven amputations; practically all had been done near the front. We did quite a number of reamputations and amputated some limbs which had done badly from osteomyelitis, and for disorganized joints, extensive loss of tissue, secondary hemorrhages, etc. The badly infected wrist and foot cases seemed to do the worst, even worse than the knees.

We had three Dakin wards, and it was surprising to watch how rapidly these badly mutilated wounds would clean up and heal under this treatment.

As fast as the bedridden cases became ambulatory, we would get them on the passenger list and send them home on the first available ship. Many of our worst bedridden cases stayed with us two months.

The Thomas splint for fixation of arm and leg is a distinct advance in surgery. By properly adjusting it and giving it a little attention, you can transport a patient in comfort, and at the same time maintain extension and fixation. I have heard only one man condemn the Thomas splint, and I understand that he is now in an insane asylum.

Recurrent osteomyelitis was very frequent. We had at one time thirty cases of complete paralysis following spinal cord injuries. These cases, to me, presented the saddest picture of all. It was surprising to see how these poor fellows clung to life and would joke about their condition. All wanted to be sent to the States to die; would be willing to die if they could only get back home.

The guillotine amputation was the one ordered by the orthopedist and seemed to offer much in the way of getting a useful, weight-bearing limb. We had some experience with railroad surgery and working for various lumber camps where amputations were not infrequent, and we all know how disappointing it is to see many of our nice looking stumps are useless when we come to fit an artificial limb. As a matter of fact,

the end of any stump is not the proper place to put the weight. By after-treatment with the guillotine amputation, proper handling and moulding the limb by aid of the Thomas splint and adhesive plaster, the muscles, skin and what is left of the tissues are moulded into conical shape and made to fit into the bucket in the artificial limb, and the weight should not come on the end of the stump at all. The after-treatment for stumps is going to receive much more attention in the future than it has in the past. All orthopedic results in future are going to be measured in terms of usefulness rather than looks. A good looking elbow, forearm or anything else which has not all of its functions is not desirable.

The guillotine amputation is in reality a circular amputation, with the skin, muscles, and bone cut practically on the same level, the anterior skin a little longer, perhaps, when you approach the knee or elbow; this anterior flap turned back and stitched for three days; no closure, no stitches. The wound looks rather unpromising for the first three days, then we begin traction on the stump by pulling the skin over the ends, by means of adhesive plaster applied high up the limb and gradual extension to a Thomas splint. The wound gradually covers over and heals in a surprisingly short time with traction and tension, and makes a better looking stump than one would expect. Light dressing over the wound.

The orthopedists claim that after the operation the patient can wear an artificial limb in comfort, in six weeks. I am open to conviction on this point. I did not see any such cases, and I saw them coming from practically every hospital in France.

The orthopedists have figured largely in this war, because under the leadership of Sir Robert Jones of England, and Col. Goldthwaite in this country, they have gone ahead and done things and are working for useful rather than sightly limbs. They have stressed the importance of fixation and rest in repair of nerve injury, the injuries to the brachial flexus, the musculo spiral, and the perineal nerves being the most frequent.

The Balkan frame, the Bradford frame, the Jones airplane splints, the Stromeyer pad, have all been of distinctive advantage and spell progress in the treatment of fractures.

After all that has been said and done, the reconstruction and finishing work is yet to be done in this country, and I do not know any better experience for any young surgeon than to stay in the army and do this work, if he can get attached to one of these reconstruction hospitals.

OTEEN

Capt. Benj. K. Hays, Oteen

My first experience with tuberculosis in the army was at U. S. A. General Hospital No. 16, at New Haven, Conn. The New Haven hospital is not only an institution for the treatment of tuberculosis but is also an army post graduate medical school. During the summer of 1918 there were about seventy medical officers in continuous training at this school. The course of instruction lasted six weeks. The demand in the army for men who were specialists in tuberculosis was urgent. The medical officers at New Haven were ordered to duty as rapidly as they completed the prescribed course. Most of the men sent to New Haven were already experienced in the treatment of tuberculosis. Many had years of institutional training behind them, while some, like Drs. Way and Cheesborough of this State, were men of national reputation. It was presumed, therefore, that the student knew tuberculosis before entering the army. The training consisted chiefly in instruction in the army method of handling the disease and in keeping records.

The method of instruction was somewhat as follows: The medical officer upon reaching the hospital was immediately assigned to one of the wards for duty. Here he was under the ward surgeon and his duties consisted in making rounds, keeping records, inspecting food and, later, in making physical examinations. He also attended daily lectures in which certain essentials in pathology, bacteriology, immunity, and the reading of X-ray plates were considered. One of the most valuable forms of instruction at this hospital, as well as at Oteen, and one for which the general practitioner feels the greatest need, is the privilege of witnessing postmortem examinations. To be compelled to stand before a critical body of medical men and read the record of one's physical findings, and then to see the chest opened to prove or disprove the diagnosis, must give one pause.

Physical diagnosis, upon which of course the greatest stress was laid, was taught by Major Eustis Nichols, of Boston, and Major J. W. Price, of Saranac, two men to whose astute knowledge of their subject was added a charm of personality which will ever cause the students at this school to remember this course of instruction with pleasure. The course began with Major Nichols. His classes consisted of five students. He also had present for clinical demonstration five men with normal or nearly normal chests. He simply taught the proper method of examining a normal chest. For three or four hours a day through a period of three days he instructed the students upon his class in inspection, palpation, percussion, and auscultation. It would be very

interesting to go into his methods, but time forbids. Before leaving this class the student was thoroughly tested and only those who had made good were passed on to Major Price. The classes of Major Price consisted of five men also, and his course lasted ten or twelve days. Here the clinical material was the diseased chest. After a few days instruction the student was required to select a case upon the ward where he was on duty, to make a physical examination, to record his findings and to present this case at the clinic on the following morning. The five cases thus brought in would occupy the entire forenoon, each student being required to go over each case. In the afternoon the X-ray plates of these cases were studied.

Never for a moment did the work become irksome. It was pursued with the greatest interest and enthusiasm by the entire student body. A successful doctor, some fifty years of age, after taking the course, remarked that never before had he given his patients the worth of their money—not even when they did not pay him. For a month after completing the course with Major Price the students continued their work upon the ward, some becoming ward surgeons while others worked as assistants—all under the immediate supervision of the medical chief. From this school the students were sent out to do expert chest work upon examining boards and to man the various tubercular hospitals of the army.

Having completed my term at New Haven, I was ordered to the U. S. A. General Hospital No. 19, at Azalea, N. C. Azalea is the name of a station on the Southern Railway, seven miles east of Asheville. The hospital is about one mile from the station. When a postoffice was opened at the hospital it was called Oteen. Oteen is an Indian word and means "chief aim." The first ground was broken for the construction of this hospital on March 25, and the first patients were received on September 4, 1918.

The hospital is located upon a plateau near the Swannanoa River and in the heart of the Blue Ridge Mountains. It would be treading upon the sacred prerogative of the medical profession of Asheville to speak of the influence of this climate upon tuberculosis. We are not talking for Buncombe. But we are keenly alive to a certain sense of well being at Oteen which we did not know in other sections of the country. We enjoy the mountains with their play of colors, gazing in wonder upon the snow-capped peaks while the valley is a sea of emerald. We believe ourselves in dreamland as we watch the lights and shadows dancing across ravines. We are moved to ecstacy as we view cascades half covered by rhododendron. We look toward Pisgah and behold Biltmore Mansion rising in profile like a mediæval castle

in its Alpine fastness. Yet, in the midst of all this, we are not for a moment permitted to lose sight of a keener sense of appreciation of pork chops and roast beef than was known to us in civil life.

The hospital must not be thought of as a single building of huge proportions, but rather as a town of about twenty-five hundred inhabitants and extending over a considerable territory. There are in all one hundred and four buildings. In shape the grounds remind one of the group of stars known as the Great Dipper. On the plateau, where most of the buildings are located, the grounds are rectangular, representing the bowl of the Dipper. At the upper left corner a roadway leads off, first to the nurses' quarters, then, taking a backward turn, runs up the mountain to a group of wards about one-half mile distant, forming a striking likeness to the handle of the Dipper. On the plateau most of the buildings are connected by long corridors, while others are reached by concrete roads and board walks. There are complete systems of water mains, sewerage, steam heating pipes, electric lights and telephone connections. Connection with the outside world is maintained by means of motor buses, army trucks, and private cars. A concrete road puts the hospital in easy communication with Asheville, which is six miles distant.

There are on duty at Oteen fifty medical officers, one hundred trained nurses, twenty-six reconstruction aides and eight hundred detachment men. At present there are about twelve hundred patients. There is a commanding officer with the rank of colonel, and chiefs of staff, such as chief of the medical, the surgical, the laboratory, the X-ray, the pathological, and the dental departments. There are also nonmedical officers whose work is purely executive, such as quartermaster, medical supply officer, adjutant, registrar, mess officer, detachment commander, police officer, and, last but by no means least, the head of the reconstruction department.

There are fifty-three wards. To make clear the manner of handling the patients let me say that only about ten per cent of them are confined to bed. Of those who are up, the physical condition varies all the way from that of men who are barely able to be out of bed to that of men who are able to do a full day's work. For convenience the wards are divided into four classes. First, the receiving wards, where all new patients are examined and held under observation until their physical condition is determined. Second, the infirmary wards, in which are kept the bed patients. Third, the ambulatory wards, in which are patients able to be out. And, fourth, the "mountain wards," in which are patients who are being hardened and tested for a return to duty or civil life. The ward buildings are so constructed that the patients sleep

as nearly in the open as is compatible with protection against inclement weather. Each sleeping pavilion opens into a comfortable dressing room with modern sanitary baths attached. In each ward there is a sitting or reading room. Here the patients may read, write, play at games or amuse themselves as they see fit.

The wards are under the supervision of medical officers known in the army as ward surgeons. They are responsible for the discipline, care, comfort, protection, and moral attitude of their men, and have a free hand as long as things go well on the ward.

Every patient is seen by his ward surgeon each morning at sick call, and receives a careful physical examination at least once each month. Every new patient has an X-ray plate made of his chest and five sputum examinations. These examinations are repeated as often as is deemed necessary. The X-ray department is under Capt. Henry K. Dunham, of Cincinnati, known the world over among X-ray men as the discoverer and interpreter of "Dunham's cones." No man in America has done more to show the great value and the strict limitations of the X-ray in chest examinations. Added to his wonderful knowledge and enthusiasm for the subject is a gift of teaching that has stimulated the interest of every medical man at Oteen in X-ray work.

Outside of the wards the Red Cross, Y. M. C. A., Knights of Columbus and other organizations look to the comfort and entertainment of the men. These organizations, with their comfortable buildings and competent leaders upon the grounds, are doing for the sick soldier boys just what the people at home intended and wanted them to do when they gave so liberally to these causes.

The novel feature connected with the large army hospitals is the work of reconstruction. This work is the admiration and wonder of all who have witnessed it. The whole scheme is based upon the simple idea that the best way to make a man happy is to keep him busy and to let him feel that he is of some use in the world. With this end in view Oteen has been equipped as follows:

Dr. Samuel North, a trained educator and sociologist, a man of keen sympathies and lofty vision, has the work in charge. Besides a competent office force there are under his supervision twenty-six young women, each of whom holds a university degree and is a specialist in arts and crafts. These women spend their entire time in instructing the patients. Where the men are able to go out to work they are found in the carpenter shop or in a school of stenography, telegraphy, bookkeeping, agriculture, or of some other useful vocation. But it is to the poor fellows who are confined to their beds that these women are a veritable Godsend. The bed patients and those who are taking chair

rest are taught carving, weaving, toy making, basket making and mechanical drawing. To watch the delight which these men take in their work, to see the renewed interest in life which useful employment gives them, to hear some poor fellow who is unable to sit up in bed explain with pride how he made a basket or a mat, will convince the most skeptical that this work is well worth while.

In trying to condense a description of Oteen into a ten minutes paper, let me say, in conclusion, that it is a place that is well worth your while to visit. If you come there you will find a welcome. You will also find many things of interest that have not been mentioned in this paper.

The following was read by the Secretary:

RALEIGH, N. C., April 15, 1919.

DR. L. B. MCBRAYER, *Acting Secretary and Treasurer,*
Medical Society, State of North Carolina,
Pinehurst, N. C.

MY DEAR DR. MCBRAYER:

I was expecting to leave this evening for Pinehurst, to attend the meeting, but am unavoidably detained. I shall be with you in spirit, however, and you have my best wishes for a pleasant and successful meeting.

I feel a special disappointment in the fact that I shall miss the President's address, which I know will be of a high order. Please tell him so for me.

With my personal regards, Very sincerely yours,

A. W. KNOX.

DR. A. W. KNOX, SANATORIUM, N. C., April 23, 1919.
Raleigh, N. C.

MY DEAR DR. KNOX:

Your letter received and we were all sorely disappointed at your absence. The President's address, which we hope will be published in the State papers, was, as you suggest, of a very high order. The Society instructed me to advise you of our disappointment at your inability to be present at this session and to say to you that you are held in very high esteem by every member present. Very sincerely yours,

L. B. MCBRAYER,
Acting Secretary-Treasurer.

THURSDAY, APRIL 17, 11 A. M.

The following telegram was received and read:

BIRMINGHAM, ALA., April 16, 1919.

NORTH CAROLINA STATE MEDICAL ASSOCIATION,
In Convention Assembled, Pinehurst, N. C.

Greetings and all good wishes. Hope you are having a great meeting. We are depending on you to come en masse to our meeting in your city of Asheville this November. Let this be your parting word to each other, "Will see you in Asheville." SOUTHERN MEDICAL ASSOCIATION.

Dr. K. P. B. Bonner: It is not only customary, but on this particular occasion it is a pleasure to express to the hotel management, to the Moore County Medical Society, and to Dr. L. B. McBrayer, Chairman of the Committee on Arrangements, our keen and sincere appreciation of the hospitality that has been extended and the entertainment that has been given to the entire membership during our stay at Pinehurst, and I move that the Society give a vote of thanks for this hospitality and entertainment of the Medical Society of the State of North Carolina.

Dr. H. A. Royster: In seconding this motion, may I also include some internal thanks which I think are deserved? The congratulations of the Society have already been extended, but I want to congratulate you, Mr. President, on your happy appointments of the Chairmen of Sections and on the capable performance of their duties. I have never seen any meeting anywhere conducted with such promptness, thoroughness, and intelligence. I am not usually given to flattery, sometimes I am given to the opposite. I could not help but note that in the Section on Surgery, which had ten papers, the writer of every paper was present and every paper was read on time and discussed. That is so rare a thing in medical associations that I think it is deserving of comment. In the last analysis it is due to two things—the appointment of the proper person as Chairman of the Section and the fact that each chairman seemed to vie with the others in securing quality rather than quantity in the papers. A great many names on a program is sometimes a good thing to flaunt before the world and make people think that we are having a good meeting, but when half the men on the program are not present and do not read their papers, it is not very interesting. I think we ought to congratulate ourselves internally and those who have managed this meeting.

Dr. Thompson: We appreciate Dr. Royster's remarks very sincerely. For myself, I say now what I said to the House of Delegates, that I have done the best I could, but the success of the meeting is very largely due to the efforts of Dr. McBrayer. We worked along harmoniously without any sort of jar, with the fixed purpose of having the best meeting at all possible in a time like this. I am myself exceedingly gratified that we have had a meeting which, in point of numbers, has seldom been surpassed, and never surpassed in point of pleasure, except in Charlotte in 1906, when our pleasure blazed up like a fire and we were in oblivion in fifteen minutes.

The motion offering a vote of thanks to the Carolina Hotel, the Moore County Society, and to Dr. McBrayer was seconded and adopted.

Dr. Thompson called for the report of the House of Delegates, which was read by Dr. Bonner.

Dr. Thompson appointed Dr. Fletcher of Asheville and Dr. Royster of Raleigh to escort the newly elected President to the chair.

Dr. Reynolds: In an extreme flight of fancy I may have aspired some day to become your President, but when Dr. Jones came into the ballroom last evening and called me out, with a glow of appreciation on his face for me, and informed me that I was really elected President of the North Carolina Medical Society, I was simply overcome, benumbed, anæsthetized, and consequently speechless. I could think of it only as an imagination, and when I got to my room I pinched myself quickly to see if it were really true. And I would say, "No, you old egotist, you were having a maniacal dream and you need the services of Dr. Griffin"—I picked him because I wanted to be near home!

Gentlemen, I realize there are always serious difficulties to overcome; the most serious that looms before me at the present moment is that I am to follow so closely Dr. Thompson. I realize his ability, his great magnetism, and it is indeed embarrassing to follow such a talented member. His Presidential Address was a gem. In it he spoke of democracy—democracy does not mean equality of men but of opportunity; it means liberty and justice to all, again it means a sound mind in a sound body. You can see that my body is trembling, my mind is wandering, and I ask you to be in every sense democratic and kind.

In the English language there are many words to choose from and if I were gifted in speech-making and if I could call to mind and give expression thereto, I could ne'er begin to express my gratitude for this, the greatest honor, given me upon this occasion. If my wife and daughter were here I might hesitate to say that it is the greatest event of my life.

North Carolina has twenty-two hundred physicians. The North Carolina Medical Society has about one-half of this number; we need them and they need us more. With your assistance and coöperation I shall endeavor to encourage those outside to join our fraternal band for a mutual gain. Remember that the individual can do something, but by collective effort we can do much, and I appeal to you, and in the asking I know that I shall receive the support of the entire Society and of each individual, and in so doing I hope that next year at the close of the session you will be able to say that the "little doctor from the mountains" has stood the acid test.

The President: The election of one member of the Nurses' Examining Board comes up for our attention at this time.

Dr. D. E. Sevier, Asheville: I wish to place in nomination for Nurses' Examining Board the name of one who needs no introduction; he is well known and well qualified; Dr. C. F. Strosnider, Goldsboro.

This nomination was seconded, and Dr. Strosnider was elected.

Dr. Thompson: I think that nothing has been left undone which we should have done, and that the program of our work and our pleasure has been happily carried through. We may now adjourn and return, satisfied, to our homes.

Having already expressed the very great pleasure which so successful a meeting has given me, and my love for the Society and its membership individually, I bespeak for my very worthy successor what I know he will receive—the same hearty support which you have given me.

If McBrayer and Hays make up the badges for next year and put on them Reynolds's face as this year they put mine—if this new system of pictured badges can stand two such countenances in succession, it is simply going some.

The very essence of the art of living is the attaining of your own happiness and the happiness of others through you. In this session we have exemplified the art.

And now, Mr. President, I move that the Society do adjourn.

Motion seconded and carried.

(While waiting for a committee report, on urgent request the President, Dr. Cyrus Thompson, made the following remarks in regard to the loss and hoped-for recovery of a set of false teeth belonging to one of the physicians in attendance on the session.)

The President: While there is a lull in our regular order, I shall take occasion to make to the Society a very sad and painful announcement. I could have done this last night, but I chose rather to spare your feelings as long as it was possible. This duty I am performing by request and not of my own motion.

One of our venerable brethren, while in attendance on our sessions, has suffered very grievous loss, a loss which affects him deeply; and not as to his externals only, but as to his internals also. Our slender and diaphanous brother, Dr. Loftin, of Beaufort, is gone home, but on leaving he sent me word to say to you that he had mislaid, lost, or lost sight of his overcoat; whereat he is greatly worried in mind, if not inconvenienced in body. His bodily suffering, of course, is not present but prospective, for Spring with her birds and blossoms is here, and April is uncommonly cheerful and kind. Summer will follow with open collar, when every form of coat is a sartorial nuisance. But chill Autumn follows with inquisitive winds, whispering, "Your coat, man,

your overcoat, where is it?" Then comes Winter, wailing to the thin, "Put it on, and keep it on—every day till I'm gone." But how can he put it on when it is lost? Would that our friend were a corpulent man!

I could advise him, in case he fails through our help to find that which he has lost, to buy another. Ah, well! in a time of multiplied prices, buying is easier said than done. Such advice is sane, commonplace, but cruel. Compared with prices of a few years ago, it is as if I had then advised him to buy two or three overcoats at once. What North Carolina practitioner could ever make such lavish expenditure as that? I would not stir you unduly, but this loss, as I see it, is no trivial matter; and I mention it with befitting gravity.

But about every evil plight there is some compensatory circumstance. "It is never so bad but that it might be worse." The winds always are somehow tempered to the shorn lamb. How fortunate it is that this loss occurred in sweet April days which have forelocked the balm of June; when even a prudent man tires of all unnecessary vestimental burden. It could not have happened in the summertime; the coat would then have been safely stowed away where moth may corrupt but thieves might not break through and steal. It hardly would have happened in the fall. At the worst, therefore, how graciously blessed is our friend that he did not lose his overcoat in the winter. Surely there is a time for all things; and I grow devoutly thankful as I shudder at thought of such frigid misfortune. In any event, may he wisely redeem the time before winter comes again!

So much for his external loss; and now a word as to his internal. No changing seasons can mitigate this. Every day affects it alike. His internal loss stands at the very gateway of his daily living. But for my habit of talking, I should be moved by it unspeakably. Here I sympathize with my friend more deeply, I suspect, than any of my auditors can feel. You, my friends, cut your teeth; but Dr. Loftin and I bought ours. There is a difference. And his teeth were in his overcoat pocket. They are there now—and he, poor man, is living a life of toothless age, mitigated alone by the abundance of fish at Beaufort and the fact that fish are never tough, oysters are not tough, and seafood is nutritious and exceedingly munchable diet. Nevertheless, for cosmetic reasons, you will agree with me that he needs his teeth—if he will wear them in his mouth instead of his pocket.

But how shall we help him? The internal may bring back the external. The teeth may be caught and bring back the coat with them. We can not tell. Many years ago, in the early days of Methodism (as I was informed by a very reliable Baptist now gone to his reward),

the Rev. Mr. Askew, an itinerant Methodist preacher, was stopping at the house of Brother Blank on Queen's Creek in Onslow. The two went for a stroll down to the landing, and stood on the creekside in sweet communion. It was a dull day with sombre clouds, and the winds came briskly from out the east. What is more pestilential than an east wind? I do not know whether the parson actually caught cold, but he did sneeze—a vigorous, hefty sneeze, as if nature were endeavoring to break up dangerous congestions in a pious frame. And he sneezed his teeth away out into the creek! It was too cold to wade in and dive and feel around on the bottom for them; and they were gone. Imagine Brother Askew's anguish and despair! Better if he had worn them like Loftin wore his. And then imagine his joy, when with a twinkle in his eye, Brother Blank said, "Don't you worry, Brother Askew; I'll get 'em for you. You stay right here till I go to the house and back. I won't be gone long." And he wasn't gone long; he was back in an hour. He brought with him a little package in one hand and a fishing-rod and line in the other. Then said he, "Show me right where you were standing, Brother Askew, and where you think your teeth struck the water." This done, Blank unwound the line, unwrapped his bundle, and hitched a leg of fried chicken on the hook and dropped it into the water. The cork sat proudly on the water for a time. Then Blank bobbed it up and down, as you and I have enticingly done full many a time. Directly there was a nibble, then the cork went under and the line swung swiftly out, and Brother Blank made a steady pull to the shore. Sure enough, he had got them! The old preacher's teeth were fast hold of the chicken leg.

We all like to go a-fishing; Simon Peter, saint as he got to be, was fond of the sport. Let us equip ourselves, now that we know the bait, and fish these April days to some humane purpose. For if Dr. Loftin is a Methodist—and he looks like he might be—he is old enough to have acquired the saintliness and appetite of a Methodist preacher; his teeth doubtless have as cultivated taste as Brother Askew's had; and who knows but that, somewhere in these sand hills, his teeth may catch on? In that event, we shall be credited with the happy termination of a very sad affair.

PROCEEDINGS OF THE HOUSE OF DELEGATES

TUESDAY, April 15, 2:30 P. M.

The House of Delegates was called to order by the President, Dr. Cyrus Thompson.

The following county societies responded to the roll call:

Society	*Delegate*
Bertie	Dr. L. B. Evans
Buncombe	Dr. D. E. Sevier
	Dr. Eug. B. Glenn
Burke	Dr. I. M. Taylor
Cabarrus	Dr. Paul R. McFayden
Caldwell	Dr. L. H. Coffey
Carteret	Dr. K. P. B. Bonner
Catawba	Dr. W. G Bandy
Cleveland	Dr. E. A. Houser
Cumberland	Dr. J. W. McNeill
Currituck	Dr. Stuart Mann
Davidson	Dr. D. J. Hill
Duplin	Dr. R. C. Williams
Durham	Dr. Burton W. Fassett
	Dr. N. D. Bitting
Edgecombe	Dr. Julian M. Baker
Forsyth	Dr. J. K. Pepper
Gaston	Dr. H. F. Glenn
Granville	Dr. G. T. Sikes
Greene	Dr. J. L. Carroll
Guilford	Dr. H. W. McCain
	Dr. Wm. M. Jones
Harnett	Dr. J. W. Halford
Haywood	Dr. J. Howell Way
Hoke	Dr. L. B. McBrayer
Iredell-Alexander	Dr. M. R. Adams
Jackson	Dr. J. M. Person
Johnston	Dr. Oscar Eason
Lee	Dr. J. P. Monroe
Lenoir	Dr. C. B. McNairy
Lincoln	Dr. J. W. Saine
McDowell	Dr. J. F. Jonas
Martin	Dr. B. L. Long
Mecklenburg	Dr. J. P. Munroe
	Dr. C. M. Strong
	Dr. B. J. Witherspoon
	Dr. A. J. Crowell
Mitchell	Dr. C. E. Smith

Society	*Delegate*
Montgomery	Dr. H. B. Hoyle
Moore	Dr. A. H. McLeod
New Hanover	Dr. J. G. Murphy
Northampton	Dr. L. E. McDaniels
Pamlico	Dr. St. E. McCotter
Pasquotank-Camden-Dare	Dr. I. Fearing
Pitt	Dr. Chas. O'H. Laughinghouse
Randolph	Dr. Thos. I. Fox
Richmond	Dr. L. D. McPhail
Robeson	Dr. B. F. McMillan
Rowan	Dr. C. M. Van Poole
Sampson	Dr. G. L. Sikes
Stanly	Dr. J. C. Hall
Stokes	Dr. R. G. Tuttle
Surry	Dr. J. W. Ring
Vance	Dr. F. R. Harris
Wake	Dr. Hubert A. Royster
Washington-Tyrrell	Dr. J. L. Spruill
Wayne	Dr. H. B. Oney
Wilson	Dr. E. T. Dickinson
Yadkin	Dr. T. W. Shore
Yancey	Dr. J. B. Gibbs

REPORT OF SECRETARY-TREASURER TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Shortly after the 1918 session of our Society, Captain Benj. K. Hays, Secretary-Treasurer, was called to report for immediate duty with the Medical Corps of our Army, and was compelled to leave without finishing up the work of the office of Secretary-Treasurer. At his request and with the approval of the President, Dr. Cyrus Thompson, the undersigned took up his work and has continued the same until the present. With the valuable aid of Mrs. Hays, we were enabled to pick up the work and proceed without difficulty. While we have done the best we could with the finances at our command, we have fallen far short of the ambitious program that Dr. Hays set for himself, and that he would have accomplished had not his patriotism forced him into the service of our country.

ADVERTISING IN TRANSACTIONS

As per motion, page 325, Transactions 1918, we wrote to some 200 ethical advertisers, but secured only 8 and the receipts from same amounted to $155, as appears in the financial statement appended hereto. While we did not get so many advertisements as we had hoped, yet it helped that much toward driving away the deficit of last year.

ANNUAL DUES OF MEMBERS WITH THE COLORS

The county societies were notified of the action of this Society, page 321, requesting the said county societies to pay the annual dues to this Society for those who were serving with the colors. Very few of the county societies have carried out this request. A few of the larger societies and a few of the smaller ones have.

MEMBERSHIP

We should have 2,000 members. Our records show that for 1918 we had 1,102 members in good standing, which by comparison with the past seems fairly good, considering the 250 who were in the war and were not paid for by their societies; but compared with the 2,000 we ought to have, it looks very badly. I know it is exceedingly difficult to make the meetings in the small societies sufficiently interesting to secure good attendance, but it remains true that no physician in North Carolina can afford to remain outside the pale of his county and State society, and I believe that if the men who keep up their membership and who thereby show their loyalty and devotion to their profession, would do their duty in this matter, we could and would have a membership of 2,000.

HONORARY FELLOWS

We have taken a great deal of pains to notify every doctor who is entitled to become an "Honorary Fellow" but for the lapse of paying dues for a year or a few years, and in this way have added quite a few names to the roster of "Honorary Fellows" and likewise increased our funds.

CORRESPONDENCE

While we have not kept in as close touch with the physicians of North Carolina as we would have liked, we have, during the year, mailed 5,100 circular letters and written over 1,000 personal letters. We have received, and we hope have given, some assistance in this way.

IN REGARD TO FINANCES

We append hereto a financial statement showing receipts and disbursements and, as you will note, it indicates that in another year or two we shall be financially able to run our Society on the "pay as you go" plan. On pages 319 and 324 of the Transactions of 1918, you will note the apparent deficit was $2,400, with "about enough in sight to liquidate it, leaving nothing with which to pay the expenses of this

meeting and the printing of the Transactions for this year." We are pleased to report that all bills to date have been paid, including printing of Transactions for 1918, and we have a balance in the treasury, April the 12th, of $564.31. The only outstanding bills are for telegrams to twenty-four counties where the doctors written to for information for the benefit of their profession refused or neglected to answer letters (we secured the information desired), and the printing of the programs for this session, said bills not having been presented to date. In addition to the small balance, if we count our membership at 1,200, which I think we shall without a doubt have for 1919, we shall collect on 487 additional members by the time the 1919 Transactions go to press, which at $3 will give us $1,461. The expense of getting out the Transactions will probably be $2,000, including everything. So it would appear that with continued economy we might be running on a cash basis in another year—certainly we shall if we increase our membership as we ought.

1888 and 1889

We would like to call the attention of the House of Delegates to the fact that the Treasurer's books show no credit for dues paid for anyone during the years 1888 and 1889. This interferes and will continue to interfere with our members becoming Honorary Fellows, and as we have no records that we can go by except the Treasurer's books, it would seem that it would be wise and proper to pass a resolution crediting all members with their dues for these years.

We desire to express our appreciation for the coöperation of the officers and members of all county societies who have coöperated with us, and for the advice and suggestions of many of our members who have the interest of our profession laid very heavily on their minds and hearts. We also wish to express our appreciation to those that responded promptly to our letter, requesting information in regard to the doctors in service, saving us the expense of tracing them by wire. And especially do we appreciate the honor and pleasure of working for and with our President during the year just closing, and may we express the hope that our shortcomings and mistakes may be covered from view with the veil of fraternal charity.

(Signed) L. B. McBrayer,

April 12, 1919. *Acting Secretary-Treasurer.*

TREASURER'S REPORT

April 11, 1918, to January 1, 1919

Receipts

Balance April 11, 1918 as per statement in Transactions, page 319	$1,712.34
Dues collected	1,591.00
Advertising collected	35.00
Total receipts	$3,338.34

Disbursements

May 2.	Merchants National Bank, note	$1,690.35	
May 7.	Dr. B. K. Hays, salary	600.00	
May 7.	Oxford Orphanage, printing	86.00	
May 7.	Dr. W. M. Jones, salary, Treasurer	150.00	
May 7.	Miss Josephine Tonnoffski, salary	77.50	
May 7.	Dr. B. K. Hays, incidentals	50.12	
June 15.	Dr. J. W. Long, expenses for guests	111.01	
June 28.	Oxford Orphanage, printing	22 50	
June 28.	Miss Helen T. Murphy, salary	10.00	
July 24.	Dr. J. T. Nicholson, dues returned	6.00	
Sept. 28.	Dr. C. H. Cooke, dues returned	3.00	
Nov. 16.	Miss Josephine Tonnoffski, salary	165.00	
Dec. 9.	Commercial Printing Company, Transactions	200.00	
	Total disbursements		$3,171.48
	Balance on hand January 1, 1919, as per bank statement, Bank of Granville		$ 166.86

January 1, 1919, to April 12, 1919

Receipts

Balance from 1918	$ 166.86
Dues collected	2,615.00
Advertising collected	120.00
Total receipts	$2,901.86

DISBURSEMENTS

Feb. 3.	Commercial Printing Company	$ 147.50
Feb. 3.	Commercial Printing Company	200.00
Feb. 10.	Dr. E. F. Long, dues refunded	3.00
Mar. 4.	Commercial Printing Company	194.31
Mar. 6.	Dr. J. A. Martin, dues refunded	3.00
Mar. 24.	Commercial Printing Company	500.00
Mar. 29.	V. F. Hill, clerk hire	3.25
Mar. 31.	Mrs. B. K. Hays, postage	9.00
Apr. 4.	Commercial Printing Company	500.00
Apr. 4.	Dr. W. C. Horton, dues refunded	3.00
Apr. 8.	Mr. H. O. Sink, clerical help	4.34
Apr. 8.	Dr. L. B. McBrayer, salary, Acting Sec'y-Treas.	600.00
Apr. 8.	N. C. Sanatorium, postage	125.12
Apr. 8.	A. W. Snow, clerical help	25.00
Apr. 8.	L. Lindley, clerical help	10.00
Apr. 8.	L. Thorpe, clerical help	10.00
	Total disbursements	$2,337.52
	Balance on hand April 12, 1919	$ 564.34

Examined and approved:

E. REID RUSSELL,
Chairman, Committee on Finance.

April 17, 1919.

The report of the Secretary-Treasurer, after being read by him, was referred to the Committee on Finance (Dr. E. Reid Russell, Dr. Z. Fearing, Dr. P. R. Hardee).

Dr. J. E. S. Davidson, Charlotte, offered a resolution adding the name of Dr. Annie L. Alexander, Charlotte, to the list of Honorary Fellows. This was seconded by Dr. J. P. Munroe, Charlotte, and was carried.

Dr. Chas. O'H. Laughinghouse, Greenville, moved that all members of the Society be credited as having paid their dues as during 1888 and 1889. This motion was seconded by Dr. A. J. Crowell, and carried unanimously.

Dr. C. M. Van Poole, of Salisbury, moved that Dr. J. B. Council, of Salisbury, be placed on the list of Honorary Fellows. Dr. Poole stated that Dr. Council had paid dues since 1886. Motion seconded by Dr. Davidson. Dr. Laughinghouse moved to lay Dr. Van Poole's motion on the table. This was seconded and carried unanimously, and Dr. Van Poole's motion was tabled.

A recess for a few minutes was taken in order that the delegates from the county societies in the various districts should select a member of the Nominating Committee from their district. The President

called the House of Delegates to order, and the following gentlemen were reported to have been selected as the Nominating Committee:

First District.....Dr. J. L. Spruill, Columbia
Second District.....Dr. K. P. B. Bonner, Morehead City
Third District.....Dr. J. G. Murphy, Wilmington
Fourth District.....Dr. C. F. Strosnider, Goldsboro
Fifth District.....Dr. L. B. McBrayer, Sanatorium
Sixth District.....Dr. G. T. Sikes, Grissom
Seventh District.....Dr. B. J. Witherspoon, Charlotte
Eighth District.....Dr. H. W. McCain, High Point
Ninth District.....Dr. C. M. Van Poole, Salisbury
Tenth District.....Dr. Eug. B. Glenn, Asheville

Dr. Thompson: I want to take this occasion to thank the Secretary for his help. He and I know how difficult it has been to hold things together and have a reputable meeting. I want to say that he has been of great service to me, and I do not know what I would have done without him.

REPORT OF THE COUNCILOR FOR THE SIXTH DISTRICT OF THE NORTH CAROLINA MEDICAL SOCIETY

WAKE COUNTY MEDICAL SOCIETY

81 members.

24 members are in the service.

The attendance and interest is poor, there being an average of six men at a meeting. Sometimes there are no meetings at all. No regular program.

GRANVILLE COUNTY MEDICAL SOCIETY

12 members.

1 member in the service.

Irregular meetings and sparsely attended.

WARREN COUNTY MEDICAL SOCIETY

7 members.

1 member in the service.

No regular time of meeting. No interest. No meetings in the past twelve months.

FRANKLIN COUNTY MEDICAL SOCIETY

9 members.

2 members in the service.

Try to have meetings quarterly. Attendance fairly good.

ALAMANCE COUNTY MEDICAL SOCIETY

22 members.

6 members in the service.

The meetings are not very regular. Attendance is uncertain. General interest not good.

DURHAM-ORANGE COUNTY MEDICAL SOCIETY

This society, its organization, and the way in which it is operated by its President and Secretary might serve as an excellent type for all county medical societies to follow after.

35 members.

10 members in the service.

The society is flourishing. The attendance and interest are excellent, usually about 20 members present at each meeting. A program is made out and published a year ahead of time, the men presenting papers of the first order. The papers are well discussed and are not only of interest but of real value.

WM. DE B. MACNIDER,
Councilor for the Sixth District.

WEDNESDAY, APRIL 16, 3 P. M.

THE REPORT OF THE COMMITTEE TO ORGANIZE THE NORTH CAROLINA STATE HOSPITAL ASSOCIATION

TO THE HOUSE OF DELEGATES
OF THE
NORTH CAROLINA MEDICAL SOCIETY

Gentlemen:

We beg to report that the committee appointed by the President of the North Carolina Medical Society at its last meeting to organize a North Carolina State Hospital Association was duly called together at the Hotel Guilford, Greensboro, on September 3, 1918, at 10 A. M., and after due and careful deliberation entered into the organization of the North Carolina State Hospital Association.

At the same time and place representatives of various hospitals in the State were also present in goodly number.

Officers were elected, committees appointed, constitution and by-laws adopted, time and place of the next meeting of the Association left in the hands of the executive committee to determine.

After full and very enthusiastic discussion of various problems confronting the organization, the meeting adjourned subject to future call.

J. F. Highsmith, *Chairman*
C. V. Reynolds
H. F. Long
J. M. Parrott
Miss L. E. Henderson

On motion, duly seconded and carried, the report of the Committee to Organize the State Hospital Association was received and approved.

THE REPORT OF COMMITTEE ON UNIVERSAL COMBINATION OF EXAMINING BOARDS

To the House of Delegates
of the
North Carolina Medical Society

Gentlemen:

Your committee appointed to consider the advisability of combining the different State Examining Boards, requiring all to pass the same examination in the first two years in medicine, was called to meet in Raleigh on two different occasions. Your chairman was unable to attend either meeting.

Dr. Hubert A. Royster, a member of the committee, was on the scene and did noble work in the way of controlling the different elements and placing our committee in line of action. A letter from him to me as chairman of the committee is as follows:

"Dear Doctor: I have to report that the bill which I had prepared and intended to introduce putting the matter of medical examinations of the first two years in the hands of the Department of Education, was not put before the Legislature, because the time was rather short in which to prepare such a long measure and also because the osteopaths, who had introduced a very objectionable measure, agreed to withdraw their bill if I should put off our act for two years. After consultation with two of my colleagues I agreed to this and the matter was settled. But in the closing days of the session the osteopaths, I believe through a misapprehension, did put in a bill identical with the one which was withdrawn, and it passed both houses. With the aid of Senator W. L. Long of Halifax, I was able after midnight at the closing session to have the bill recalled from the enrolling office and put back on the calendar. This prevented its passage, as the Senate adjourned a little while after, taking no action. Senator Long deserves the undying thanks of the whole medical profession in North Carolina.

"The measure which I had in mind, and which undoubtedly must form the basis of a law to save our Practice Act, contemplated having the same general

education and the same examinations of the first two years of medicine for all applicants who desire to heal the human body in any way, while the last two years examinations should be conducted by the several boards already in existence, meeting separately and issuing their own licenses. The State Superintendent of Public Instruction shall conduct the two years medical examinations upon questions furnished by the regular Board of Medical Examiners, who shall examine the papers and report their marks to him.

"The osteopaths did not object to this part of the bill at all. The only part they seemed to shy at was classing them as "drugless healers." And, as in other states, they are making encroachments upon our law as fast as they can, saying that their schools now teach regular medicine and that they should be allowed to practice everything we now practice. This was essentially their bill, which required so much watchfulness to defeat. In two years we shall probably not be able to hold them down, so that it is my deliberate judgment that we must get together upon some fundamental act which will set the standard for everybody who heals human ailments.

"We are coming to believe that there is no inherent right in the State to say who shall or shall not practice medicine in a certain way, but we do have a right, under the police power of the State, to protect the people from those who are uneducated. When we demand high educational standards and absolute knowledge of the human body we shall go a long way towards elevating the practice of medicine in all forms and decreasing instead of increasing the number of cults; at least that is the way it appears to me more and more as I see bills introduced into the Legislature, session after session, and witness the difficulty and sometimes impossibility of meeting these bills successfully by argument. The plan which must be adopted sooner or later will place all professional examinations under the Department of Education, carrying it back to the people, where the right belongs, and leaving the boards intact for the purpose of setting high standards for the particular branch which the applicant may practice.

"I have worked exceedingly hard and have tried to keep a close watch now during three terms of the Legislature. This is my last one before my term on the board is ended. It is my honest opinion that unless we handle this question somewhat in the way suggested, by the next Legislature we will have more difficulties than we ever have had.

"I thank you all for your coöperation and your confidence.

"Very sincerely,

"H. A. Royster."

J. F. Highsmith, *Chairman*
J. P. Munroe
H. H. Newman
E. T. Dickinson
H. A. Royster

Motion to receive and approve the report of the Committee on Single Examining Board; seconded, carried.

The report of the Committee on Public Policy and Legislation was made by Dr. McBrayer, as follows:

> We had several meetings during the session of the last General Assembly and did what we could. We found that Dr. Royster was present and that he was very watchful, and he helped us very much.
>
> At the last General Assembly there was a board created for the chiropodists.

Report accepted and approved.

The report of the Committee on Legislation Requiring the Registration of Midwives was next called for, but no members of the committee were present. Dr. Rankin, Secretary of the State Board of Health, was asked to give his views on this question, and spoke as follows:

> I think, gentlemen, that for the present, at least, the midwife problem is a local county problem rather than a State problem. I say that because any county in the State that is disposed to do so can regulate the practice of midwifery. The advantage of handling it as a local rather than as a State problem is this: If you make it a State problem, the State will have to put in the machinery to instruct the midwives and control them. If you will estimate the number of State inspectors that will take, you will find that it will be a great expense to the State, whereas, the counties can do it with very little expense. If a State act were passed, a number of counties would do nothing, and the State would have to do it, whereas at the present time any county in North Carolina, under the enabling act, can do anything it wants to do in health work. A county can pass any kind of regulation and put in any system of control. The General Assembly of North Carolina has defined the powers of the county board of health as follows:
>
> > "They shall make such rules and regulations, pay such fees and salaries, and impose such fines and penalties as in their judgment may be necessary to protect and advance the public health." (Section 9, chapter 62, Public Laws of 1911, as amended by chapter 181, Public Laws of 1913; chapter 233, Public Laws of 1915; and chapter 167, Public Laws of 1915).
>
> If your county wants to do so, it can handle this midwife problem.

Dr. Van Poole: In Rowan County we have a whole-time health officer, as you know. He brought up this matter, and the county society

took it up, but in view of the fact that so many of the doctors were gone, and midwives in the rural districts so very, very scarce, the matter was postponed indefinitely.

Dr. McBrayer: I notified the members of this committee of their appointment, and notified them of the meeting of the General Assembly two weeks before it met. Two weeks ago I notified the chairman of the meeting of the State Medical Society, so they had ample notice.

Dr. Sikes moved that the committee be discharged, as, according to the information given by Dr. Rankin, no action need be taken.

Dr. Laughinghouse: I move that the committee be discharged with notification and advices that, owing to the fact that the members did not deem it of sufficient importance to pay any attention to the work for which they were appointed, the committee is therefore discharged. I think this midwife question should still be kept alive. It seems to me that there is no question of more importance to the State, and it seems to me that it would not be a bad idea to appoint another committee.

Dr. Bonner: I second Dr. Laughinghouse's motion. While we have the machinery in our State laws to regulate these things, still it is not amiss for the Society to go on record on this matter. It is a very live problem, and very important.

The motion offered by Dr. Sikes to discharge the committee, with the amendment offered by Dr. Laughinghouse, was seconded and carried unanimously.

Motion by Dr. Laughinghouse that a committee be appointed to take up this matter and report. Seconded; carried. A committee was appointed, as follows: Dr. Laughinghouse, Dr. Rankin, and Dr. Bonner.

The Committee on Finance, through its chairman, Dr. E. Reid Russell, reported that it had examined and approved the accounts of the Secretary-Treasurer. The report was received and approved.

Wednesday, April 16, 10 p. m.

The report of the Nominating Committee was presented, as follows:

The Nominating Committee met at twelve m. and eight p. m. on April 16, 1919, in room No. 34, and organized by electing Dr. C. M. Van Poole as President and Dr. K. P. B. Bonner as Secretary.

After due deliberation, careful consideration, and earnest consultation with a view of arriving at a choice conducive to the wishes and best interests of the Society as a whole, the Nominating Committee begs leave to recommend the following nominations:

Officers, 1919-1920

President .....Dr. C. V. Reynolds, Asheville
First Vice-President.....Dr. H. D. Walker, Elizabeth City
Second Vice-President....Dr. F. Stanley Whitaker, Kinston
Third Vice-President.....Dr. Thos. I. Fox, Franklinville

Councilors, 1919-1922

First District.....Dr. B. F. Halsey, Roper
Second District.....Dr. K. P. B. Bonner, Morehead City
Third District.....Dr. J. W. Tankersley, Wilmington
Fourth District.....Dr. E. T. Dickinson, Wilson
Fifth District.....Dr. A. McN. Blair, Southern Pines
Sixth District .....Dr. W. C. Horton, Raleigh
Seventh District.....Dr. L. A. Crowell, Lincolnton
Eighth District.....Dr. J. K. Pepper, Winston-Salem
Ninth District.....Dr. M. R. Adams, Statesville
Tenth District.....Dr. Eug. B. Glenn, Asheville

Committee on Scientific Work

Dr. Thurman D. Kitchin, Wake Forest
Dr. A. S. Root, Raleigh
Dr. C. D. W. Colby, Asheville,
Secretary, ex-officio

Committee on Publication

Dr. B. K. Hays, Oxford
Dr. L. B. McBrayer, Sanatorium
Dr. D. A. Garrison, Gastonia

Committee on Obituaries

Dr. E. J. Wood, Wilmington
Dr. B. O. Edwards, Landis
Dr. N. D. Bitting, Durham

Committee on Finance

Dr. N. C. Daniel, Oxford
Dr. A. B. Byerly, Cooleemee
Dr. T. V. Moore, Acme

Delegates to Virginia Medical Society

Dr. Z. Fearing, Elizabeth City
Dr. M. S. Martin, Mount Airy
Dr. K. C. Moore, Wilson

DELEGATES TO SOUTH CAROLINA MEDICAL SOCIETY

Dr. Guy E. Dixon, Hendersonville
Dr. N. A. Thompson, Lumberton
Dr. S. A. Stevens, Monroe

PLACE OF MEETING: Charlotte

CHAIRMAN OF COMMITTEE ON ARRANGEMENTS

Dr. B. J. Witherspoon, Charlotte

K. P. B. BONNER, *Secretary.*

On motion by Dr. Laughinghouse, seconded by Dr. Wm. M. Jones, the report of the Nominating Committee was unanimously adopted.

No further business appearing, the House of Delegates adjourned.

MEMORIAL EXERCISES

Wednesday, April 6, 8:30 p. m.

Doctors who were killed or who died in service:

County	*Name*	*Address*
Alamance	P. R. Brown	Swepsonville
Chatham	Percy Howard	Morrisville, R. F. D.
Lenoir	S. J. Hawes	Dover
Mecklenburg	J. W. Squires	Charlotte
	M. C. Houser	Charlotte
New Hanover	Tate Moore	Wilmington
Wake	John E. Ray	Raleigh

Total—7.

Doctors who died of influenza or influenza-pneumonia:

County	*Name*	*Address*
Avery	J. R. Sutton	Elk Park
Buncombe	A. J. Terrell	Black Mountain
Carteret	C. A. Sutton	Beaufort
Dare	E. W. Jones	Hatteras
Granville	Dr. Hester	Oxford
Mecklenburg	G. H. Sadelson	Charlotte
Montgomery	V. L. Andrews	Mt. Gilead
Moore	John H. Matthews	Vass
New Hanover	B. J. Willingham	Wilmington
	Arnold Stovall	Wilmington
Northampton	E. W. Lassiter	Rich Square
Robeson	W. Forest Stephens	Fairmont
	Dr. Exum	Maxton
Warren	Willis Alston	Littleton
Wayne	B. W. Cox	Goldsboro
Wilson	J. S. Harrison	Elm City
	T. H. Wilson	Lucama

Total—17.

Doctors who died from other causes:

County	*Name*	*Address*
Alamance	W. G. Stafford	Burlington
Ashe	Dr. Barton	Jefferson
Buncombe	Silvio Von Ruck	Asheville
Burke	T. V. Goode	Connelly Springs
	E. A. Hennessee	Glen Alpine
Cabarrus	C. W. Wallace	Concord
Catawba	W. H. Sherrill	Sherrills Ford
Chatham	Ben Stroud	Ore Hill

County	*Name*	*Address*
Currituck	F. W. Ritter	Moyock
Gaston	J. M. Caldwell	Gastonia
Hyde	Francis M. Clarke	Middletown
Mecklenburg	Wm. K. Reid	Charlotte
	Charles E. Walker	Charlotte
Nash	D. R. Dixon	Rocky Mount
	S. B. Dew	Bailey
Pender	P. E. Lucas	Burgaw
Person	C. G. Nichols	Roxboro
Sampson	J. A. Stevens	Clinton
	Henry Sloan	Ingold

Total—19.

Total number deaths in the profession—43.

OUR HEROIC DEAD

Dr. H. H. Dodson, Greensboro

Heroes? Yes. Dead? No. Such men do not die.

We do not come to mourn them, but to honor them and glory in their deeds. We rejoice that they were our friends and comrades.

It has been said that we sometimes so stand in the presence of the Infinite that through a thin veil we almost seem to hear the music beyond. We almost hear their voices. They are not dead, these heroes; they have gone down behind the horizon, but their souls live, and they live in our memories and our hearts. We cannot see their faces or touch their hands, but, gazing up into the sky, and through and beyond the stars, there, their kindly eyes are looking down on us to see how we may carry on yet awhile the inheritance they have left us. Not alone those in camp, field, and trench, who amid the roar of cannon and human carnage stood the profound test and made the great sacrifice and have their visible stars there (pointing to service flag), but that other Reserve Corps who in the daily ordeal of civil life stood the test, and justified their stewardship, giving their lives for those around, they are none the less heroes. A great ship starting out from her dock—"How helpless she is. She cannot use her machinery; her sails are furled; she is pushed forward and backward; she is helped along by tugs; she stops to let other craft go by; she waits through weary hours; she goes on again, but she is limited and retarded. But some progress is rewarding her perseverance. She is getting more room; she begins to ply her engines, but she must be slow, she must be cautious. Now there is more liberty. There are fewer conditions, fewer obstructions. The river is wider. The city, with its din, is being

left behind. A breath of ocean brine revives the sailor. He unfurls his canvas. He moves steadily to the line where river fades into sea. He hears the music of the surf beating upon the sands. He sees the waves like white horses, tramping across the prairies of the ocean, and at last the gallant ship, emancipated, seems to stretch herself, to expand herself, and swell, and sway, and bow in ecstacy, as she speeds her way across the billowy fields of her native heath and boundless home." Thus it is with these heroes. Their souls, escaping from the trammels of the flesh, and the limitations and the conditions imposed upon them, emancipated, free, unshackled, rejoice in the presence of the "Great Spirit, the Infinite, which is the soul's ocean, the soul's home."

And what further are their rewards? The praises of men, and the plaudits of the world, the spared lives made possible by their sacrifices, the love of friends, and the honor and respect of this Society: This! Aye, more! We do not know what, but we do know that 'Greater love hath no man than this, that a man lay down his life for his friends." Have not these done so; for both friend and foe? And had they not also the love of God in their hearts manifested in their lives? I think so, and we read that "eye hath not seen, nor ear heard, neither hath the heart of man conceived the things God hath prepared for them that love Him." We know what the eye hath seen: the beauty of the earth, the grandeur of the sea, the glory of the sky. We have seen the rainbow splendors of Niagara and the snow crown of Mount Blanc. We have seen the sleeping river waked by the coming dawn and blush. But eye hath not seen it. We know what the ear hath heard: the marvels of the human voice, the martial music of marching armies, the dying notes of great organs fading away through arches of vast cathedrals. We have heard the matins of the fields and the even song of the woods. We have heard the waves clash their cymbals, and the wind's bugle blow, and the deep cadence of the sea. But ear hath not heard it. We know what the heart hath conceived, how it hath gathered in its imagination all the power and pomp of wealth; how it hath seized with its fancy all the ecstacies of love.

But "neither hath the heart conceived the things which God hath prepared for them that love Him"—these, our victorious and resting heroes.

OUR HEROIC DEAD—WITH THE COLORS

A. J. Crowell, M.D., Charlotte

Mr. President:

The silence that followed the roll call of our lamented dead was pathetically significant to me of that long silence into which they have entered, and which must some day fall upon all of us.

But it was more than this. It was filled with thoughts of those who are very dear to us. It was an impressive testimony to emotions too deep for words. It was prophetic of the immortality of the dead, for

> "The surest pledge of a deathless name
> Is the silent homage of thoughts unspoken."

It may be that this silence should have continued unbroken. It may be that even now we could honor their memory in no more fitting fashion than to rise and go forth from this assembly with the solemn benediction of their unseen presence upon us.

But since such a course would inevitably be misinterpreted and since the duty of speaking has been laid upon me, I shall endeavor to voice some of the feelings and reflections that are common to us all.

In a general way, the work of our profession during this war has been the same as in all wars, and in all catastrophes public or private. The distinguishing glory of the physician has always been, like that of the Great Physician, to heal the sick, to mend the broken, to alleviate suffering, to save life.

But in no war have the opportunities to exercise this ministry been so multiplied, for in no war have the casualties been so many, the wounds so frightful, the struggle so protracted and exhausting, and the danger of death from infection and disease so great.

In no war was science ever applied so relentlessly and immorally to the work of destroying human life by means which unsuspecting humanity had not anticipated and against which medicine had not provided.

In no war was the interval so great, in thousands of cases, between the infliction of wounds and the time when the wounded came into the physician's hands.

Yet, in spite of everything that made against the efficiency of their efforts, our physicians so reversed the records of all previous warfare that only seventeen per thousand died of disease as against fifty-seven per thousand of wounds received in battle, and of all the wounded eighty per cent were saved to life and restored to usefulness.

To the accomplishment of this magnificent result the men whom we mourn today devoted the utmost that was in them of strength and skill, even to the laying down of their precious lives. They opposed barbarity with mercy. Against frightful engines of destruction they set their constructive skill, and everywhere that Satan set his feet to blight they laid their hands to bless. Fifty long years from now Europe will still be filled with old men, scarred by bayonets and scarred with bullet wounds, but they will be old men, not dead men, and they will owe their lives to the army physicians who labored so heroically and self-sacrificingly for their salvation.

Such a ministry was not fulfilled without cost to those who performed it. They were obliged to leave their practice, their friends, their home land, and the daily sight and touch of those whose sweet companionship was as the wine of life.

They had to endure unexampled hardships and perform exhausting labors. Some of them had to die among those they had gone to save, and be buried in strange lands and under alien stars.

What thoughts may have come to them in their last hours we can never know. What faces fancy may have framed before their closing eyes we can only conjecture. Their tears we were not there to wipe away. Those that they loved most were far from them, and some whom having not seen they loved they were never to see at all. It was the hour of supreme renunciation.

Gentlemen, nothing would be too good for these men, had they lived. Nothing that we may now do for them can give them pleasure or pain. Yet, something is due to their memory and to those that cherish it with love and pride.

And, so, I suggest and urge that in the great memorial building that is soon to be erected at the State capital in honor of those who served our country and died for human freedom, the North Carolina Medical Society place a life-size figure of the army physician in the uniform of his country, having the insignia of his profession, as a memorial of his merciful devotion to duty and as a tribute to the love and admiration in which we, who live, hold fast the memory of those who died.

OUR HEROIC DEAD—FROM INFLUENZA

Dr. Wm. M. Jones, Greensboro

We are gathered here tonight in memorial assemblage, to do honor to the memory of those our colleagues who have, during the past year, sacrificed their all upon the altars of God, Country, and Fellowman.

From plans of the present and future we turn our thoughts backward with sighs and regrets, for those who have been our friends and companions.

It is beyond the power of man to adequately express, even in part, that which has taken place since last we gathered here. Never before, never since time was, has a year so pregnant with momentous results passed across the dial of time; a year wherein such Herculean efforts have been directed upon one object, and one wherein the effects were to affect so many people and for so long a time; nor does it yet appear

what the ultimate results will be. These results can only be seen by those of the future, for no one living to-day will exist long enough to behold more than the mere beginning.

I hope that we are a changed and improved body of men and women from what we were one year ago. Surely this has been a year to try men's souls, and certainly we have not been unmindful of the great and far-reaching effects, nor of the sacrifices that have been made, for if we have: "Woe unto you, Bethsaida," for if such things do not bring great and radical changes, then indeed are we hopeless. But thanks be to Almighty God, when the time comes to record the acts of the men and women of America, there will be no writing on the wall as saw Belshazzar of old, no "Mene, mene, tekel, upharsin."

For a time we were as though dazed, we were drifting without star or compass, so far as our acts and deeds were concerned; though our desires and sympathies were with the Entente from the beginning, we were simply resting supinely, seeing the armies of God and democracy being hard pressed by those of atheism and autocracy.

However, in God's own good time, when we did finally become fully aroused from our ennui to action, and when with great alacrity we burst asunder that cloak of lethargy by which our reason had been bound, so great and awful was our awakening that it shook the earth from pole to pole, arousing the Chinese from the seclusion of the Oriental province, and the Laplander from his frozen sleep in the "Land of the Midnight Sun," and even the ivory-headed Hun was suddenly brought to consciousness and reality from his dreams of self-conceit and personal aggrandizement.

War, Pestilence and Famine, the three arch enemies of man, have been running rampant upon the earth.

To those who donned the uniform of our country, and went forth to war, all honor is due—their deeds are on record; and as for those who sacrificed all, another more able than I has spoken; I would not if I could, and could not if I would, subtract one scintilla from the honor that is their just due.

It has been said that "They also serve who only stand and wait," but I do not speak to-night in behalf of any who simply stood and waited, but for those who went forward and led—our friends and colleagues—who paid the supreme sacrifice in answering duty's call, fighting war's principal ally, Pestilence. "There is one glory of the sun, and another glory of the moon, and another glory of the stars, for one star differeth from another star in glory."

"Together we stand, divided we fall," is an old and proven motto, but as every rule has its exceptions, so has this motto in its literal trans-

lation been refuted, but sustained in its free interpretation by our confréres. For they fought single handed and alone, in daytime and nighttime; in rain and fair weather they carried on, when they knew that the limits of human endeavor had been reached, when they knew there were no reserves upon whom they could call for aid and assistance. They fought, sick and well, and at times when they knew that they were fighting a losing fight, for with bodies weakened by almost superhuman efforts, and with no armor adequate to protect them from the darts of the enemy that were almost ubiquitous, they fought on and on and on; when they knew that there was a greater probability of losing their lives than saving others. According to the words of our Lord, "Greater love hath no man than this, that a man lay down his life for his friends."

There is a character in sacred history that bears in one respect a close analogy to these, our departed, and that is Saul, the first King of Israel. To me, Saul is the bravest character in history, for so far as I am aware he is the only man to go forth into battle without even the hope of a possible success, but with the certain knowledge of defeat for his army and death for himself and family, yet with all this he did not desert but fought valiantly to the end.

We shall see their faces and hear their voices no more in our gatherings. Our hearts long for, but in vain,

> " . . . the touch of a vanish'd hand
> And the sound of a voice that is still."

But, as followers of the True Physician, we are taught "not to sorrow as those who have no hope," for those who are not. And as we recall the memory of our departed friends and companions, let us give thanks to Almighty God for their beneficent example, striving always to emulate their untiring fidelity to duty, their indomitable courage, their illustrious virtues, thereby the better preparing ourselves for that day when we, like they, shall fall like autumn leaves to enrich our mother earth. At the grave we are forcibly reminded of the mortal part of man, and dark and gloomy indeed would be our prospects did we not remember the teachings of our Lord, by which we know that the mortal will put on immortality, and that the terrestrial body will become a celestial body. It is this that enables us to see the silver lining of the dark cloud of bereavement that overshadows and oppresses us, from which there streams an effulgence that lightens our gloom and assuages our sorrow.

JAMES WILLIAMSON SQUIRES

Dr. Robt. H. Lafferty, Charlotte

"Captain Squires fulfilled my ideal of the Southern gentleman" was the remark made to me a few weeks ago in New York by a young rœntgenologist who was associated with him "over there."

Born of a stock of fighters, James Williamson Squires throughout his life was a fighter. First, since, like most Southern boys, he had little money, he fought for his education, and he won. Then he fought with unlimited energy and enthusiasm for success and a reputation as a rœntgenologist, and he won. Then he fought to save the lives of our boys injured in the terrible war, and no one knows how often he won. He fought a brave fight in his last illness and, at first, he won. Even in the relapse the last thing he said to his Colonel was, "We will win out yet," and we pause to ask, Did he not win? His reward? "Well done, good and faithful servant"; "Soldier, rest, thy warfare's o'er." But while he won, we have lost—lost a friend, an ardent and enthusiastic member and physician and rœntgenologist, who was always interested in the advancement of medicine and the progress of science.

Dr. Squires was born at Matthews, N. C., November 2, 1888. He graduated from the Charlotte High School in May, 1906, and although he spent most of his afternoons at work, he led his class. In 1911 he graduated with the degree of Doctor of Medicine from the North Carolina Medical College, and after additional work at Johns Hopkins and Rockefeller Institute, he became associated with his uncle, Dr. A. J. Crowell, in Charlotte. He was married in 1912 to Miss Eunice Jeffries of the same city.

In 1913, after special work under some of the best rœntgenologists in this country, he decided to give his entire time to this specialty, and it was as rœntgenologist for the Yale Mobile Hospital No. 39 that he was serving his country in France at the time of his death, December 16, 1918.

As a rœntgenologist, he ranked with the best men of his country, and he spared no energy in working and developing his line of work in this section of the south. When the call came to arms he was ready, and having received his commission as captain, he left for Fort Oglethorpe June 16, 1917. From there he was transferred to the X-ray school in New York, and sailed for Europe the 21st of August, the very day his second son was born.

Many and glowing reports came to us of his work overseas. His ceaseless activity, his unlimited energy, his enthusiasm, and withal, his gentlemanly bearing, made him a favorite with the unit with which he worked.

Far away in the sunny land of France, still desolate from savage hordes, there are many graves tended by the grateful hands of the maids of old France in recognition of the great service rendered them. But there is one mound upon which we would to-day shed a tear, for our friend was there laid to rest.

"Friend after friend departs;
Who hath not lost a friend?
There is no union here of hearts
That finds not here an end;
Were this frail world our only rest
Living or dying, none were blest.

"Forgive our grief for one removed—
Thy creature whom we found so fair.
We trust he lives in Thee and there
We find him worthier to be loved."

EDGAR W. LASSITER

DR. MAHLON BOLTON, RICH SQUARE

Dr. Edgar W. Lassiter was born at Rich Square, N. C., November 9, 1880. He was educated in the local schools and Trinity College, Durham, from which institution he graduated June, 1901, with the degree of A.B. In the fall of 1901 he entered the Medical Department of the University of Maryland, Baltimore, where he pursued his medical course for two years. On account of the failing health of his father he was detained at home to look after his extensive business and did not return to college in the fall of 1903.

On February 10, 1904, he was married to Miss Mary Vann, of Rich Square, who, with two bright little girls, survives him. His mother, for many years an invalid, is still living.

After his father's death he decided to finish his medical course, and January, 1906, he went to the University Medical School, Richmond, Virginia, and graduated there in June, 1908. He passed the State Board the same year and joined the State Society. He located in his home town for the practice of his profession, where he enjoyed the confidence and esteem of all the people.

October 5, 1918, he was stricken with influenza, which was soon complicated by pneumonia, and he died October 12th. The epidemic was on in his community and he was untiring in his attention to his patients, and it can be truly said that he was a martyr to his fidelity to duty.

He was a useful, public-spirited citizen, as well as a kind, cultured and progressive physician, and no man has died in this community whose going was more universally mourned than Dr. Lassiter's.

GEORGE HEMAN SADELSON

Dr. J. G. Johnston, Charlotte

George Heman Sadelson was born May 3, 1854, at Lockport, N. Y. His parents were Samuel and Sophronia Sadelson. His preliminary education was obtained in the Lockport Union High School, and his medical education was at Buffalo Medical College, from which he graduated in 1877 with high honors. Following his graduation, he located at Charlotte, Niagara County, N. Y., where he practiced for three years. At this time, 1880, he moved to Wilson, N. Y., where he remained one year. During his last year in college his health was not good, and under the urgent demands of a large general practice it broke down completely, making it necessary for him to seek a change of climate in search of health. With this end in view he came south, stopping in the section now known as Southern Pines, arriving there in February, 1881. Although quite frail at this time he soon began to improve, and in the following November was joined by his wife, who ever cheered him on and encouraged him in his fight for life and health. He lived in this vicinity for about seventeen years, when his health was sufficiently restored for him to begin work again. So far as we know, Dr. Sadelson was among the very first of those going into this region in search of health, and to him more than to any other man belongs the credit of first bringing into prominence the Southern Pines vicinity as a health resort. Going there as he did, with health shattered, he regained his strength in this salubrious climate to such an extent as to enable him to do his full share in the world's work. As a health resort, Southern Pines is, in reality, a memorial to Dr. G. H. Sadelson.

In 1907 he moved to Charlotte, N. C., and again resumed the practice of medicine, having in the meantime made a special study of skin diseases, and from that time to the date of his death, in February, 1919, his whole time was devoted to dermatology. Being of a naturally bright mind he made quite a success of his work, and if he was more interested in one phase of it than another, the favored part must have been prevention. Often have I known him, in prescribing and treating patients, to notice some small thing that to them appeared quite insignificant, but to his trained eye was a forerunner of trouble, and spend much time in explaining this condition and advising them to have it attended to at once.

Dr. Sadelson was a home man, if I may use the expression. He was fond of his home and enjoyed spending as much time there as he could. Being a great reader, as well as a liberal buyer of books, he had

much at home to make the time pass pleasantly. His home life was ideal. He was married the year after graduation to Miss Estelle Skinner, who, with three children, two boys and one girl, survives him.

Dr. Sadelson was an upright, conscientious, Christian man, ever ready to do his part for the common good, whether in church or State. At the time of his death he was a teacher in his Sunday school, teaching a class of young ladies—a Philathea class.

He was devoted to his profession and when it was possible always attended the meetings of the medical society, both county and State, and at various times contributed papers to these bodies that commanded attention and showed deep and thorough work in their preparation.

Modest and retiring, one was apt to overlook his true worth, but to the person who would take the trouble to look for it the worth was always there and, once discovered, he had made a lasting friend.

As a friend, Dr. Sadelson was genial, devoted, and always ready and willing to do all that lay in his power to help, and when the Angel of Death beckoned him to the other shore, those of us who had the privilege of knowing him well felt indeed that we had lost a friend. During the early part of February he had an attack of influenza, and on the 10th quietly passed away, in the bosom of his family.

Kind friend, we bid you a last, a long farewell, and hope that when we have served our time here we may be deemed worthy to greet you in a fairer and happier land.

DR. CHARLES E. WALKER

Dr. R. L. Gibbon, Charlotte

In these latter years the world has become accustomed to the destruction of human life, whether by war, disease, or accident, on a scale never before known to this generation, and no doubt unknown for many previous generations. There have been times of late when the life or death of the individual has been held lightly in comparison with the attainment of a great purpose, and in the general misery and anxiety of mankind, a mere man sank beneath the surface with hardly a ripple to mark his absence from the theatre of world activities. This was and is probably much more true of other countries than of ourselves, who have been spared by a beneficent Providence the full weight of a world calamity.

Nevertheless, as medical men, we still uphold the sanctity of human life, and fail not in our loyalty to the memory of beloved friends and confrères who have preceded us to that mysterious retreat whence no

traveler returns. We would acclaim the life-conserver rather than the life-destroyer, although it not infrequently happens that the latter receives far more of popular appreciation.

The subject of these imperfect remarks, Dr. Charles Edgar Walker, of Charlotte, North Carolina, the memory of whose life and deeds we would affectionately preserve in the records of this Society, was one of that large class of general practitioners in our State who, of quiet and unassuming manner, labor unceasingly in the interests of their communities; of robust physique, he was prodigious in his ministrations. Patient and sympathetic toward every class of society, he was essentially human in his viewpoint and never forgot the man in his interest in the disease. An extensive practice and the affection of a multitude of people attest the success of his efforts.

In his professional relations he was always "fair and square," and was particularly considerate in his association with the younger men of his profession.

Dr. Walker was born in Charlotte, North Carolina, on July 3, 1867, his parents later moving to Huntersville, where his boyhood was passed. He attended the academic department of Davidson College two years, and then began the study of medicine under Dr. Paul Barringer, who at that time had a preparatory medical school at Davidson. He later received his diploma in medicine from the University of Maryland.

From the time of his graduation until the year 1901, when he moved to Charlotte, he practiced his profession in Huntersville and the adjacent country.

He was married in 1894 to Miss Minnie Harry, who, with three daughters, survives, to mourn the loss of an affectionate husband and father.

Dr. Walker died suddenly, on November 8, 1918, while in attendance upon a joint meeting of the Medical Advisory Boards which was being addressed by Dr. A. W. Knox, of Raleigh, the cause of death most probably being acute dilatation of the heart, some symptoms of which he had previously exhibited.

During the greater part of the war, he served faithfully on the District Advisory Board, and while just and considerate, always, he permitted no slackers or trivialities to interfere with the interests of the Government.

It was fitting, however shocking to relatives and friends, that his transition should come quickly, in the midst of the activities and labors which he loved so well, and while serving his country in her hour of distress.

JOHN EDWIN RAY, Jr.

John Edwin Ray, Jr., second son of John E. and Finie Carter Ray, was born at Hendersonville, N. C., on November 29, 1888. His boyhood education was received at the public schools of Raleigh and the Raleigh Male Academy. He graduated at Wake Forest College with the degree of A.B. in 1908; and in September, 1909, entered the Medical Department of the University of North Carolina, took the two years course there and then went to Cornell Medical School, from which he was graduated with high honors in June, 1912.

In a competitive examination of graduates of the leading medical schools of the country, he won first honors and his choice of interneship at Bellevue Hospital, New York City. He spent two years in that institution, during the last six months of which he was house surgeon —a most valuable experience and training for his future career.

In 1914 he returned to Raleigh for the practice of his profession, specializing in general surgery, and quickly won the confidence, respect, and esteem of his professional brethren and the general public. He was a member of the Raleigh Academy of Medicine, the Wake County Medical Society, and the State Medical Society, and later was appointed as visiting surgeon on the staff of Rex Hospital.

In May, 1916, he received his commission as first lieutenant of the North Carolina National Guard and six weeks later reported for active duty, going with his organization to Camp Glenn, N. C. In the following September they were ordered to the Mexican border, being quartered at Camp Stewart, Texas. While there he acted as chief surgeon in the hospital established at Fort Bliss. He was transferred to the Second North Carolina Regiment, which was not mustered out of service but was stationed in eastern Carolina, with headquarters at New Bern. In August, 1917, they were sent to Camp Sevier, Greenville, S. C., where they became the 119th U. S. Infantry. In the following spring (1918) he was made captain and was transferred to the 105th Field Signal Battalion, with which organization he sailed for France the last of May. Later, at his own request, he was transferred to his old unit, the 119th Infantry, and it was while serving his men on the old Hindenburg line that he was wounded, September 30th, by a fragment of high explosive shell which struck him on the region of the upper thigh. He was carried to the 74th General Hospital, A. E. F., at Trouville, France, and passed away five days later on Saturday, October 5, 1918, at 4:20 A. M. He was buried at Trouville on Monday, October 7th, with full military honors.

The following citation for acts of meritorious conduct described was published to the command:

"JOHN E. RAY, MEDICAL CORPS 119TH INFANTRY

"During the attack on the Bellecourt area, 29th September, 1918, Captain Ray administered first aid to many of our own and the enemy wounded, helpless under heavy shell and machine gun fire. He established his aid post in the front line trench and maintained it with the front line troops on their advance. It was during this time that he was severely wounded and died a few hours later. His exceptional bravery and devotion to duty are worthy of utmost praise."

Captain Ray was awarded, posthumously, the British military medal and the Distinguished Service Cross. He was descended from a line of noble ancestors, who fought to establish the freedom of our own country. Modest, manly, unswerving in devotion to his high ideal of duty, he made the supreme sacrifice for his country and laid down his life in the cause of humanity and righteousness. To his family and friends and to this Society of his professional brethren he left the high heritage of unselfish courage and untarnished name. He sleeps in France among the heroic thousands of his countrymen who fell, as he fell, fighting for the triumph of right against might.

Let us not *mourn* for him, but stand erect with uplifted head when we speak his name, and a smile of pride for the manly part he bore.

Dr. Cyrus Thompson, Jacksonville: We lost seven physicians in the war. Seventeen men were taken from our North Carolina ranks by influenza, more destructive than war.

Dr. J. P. Munroe, Charlotte: I would like to offer a motion bearing on Dr. Crowell's suggestion: That the President, at his convenience, appoint a committee of five to consider the feasibility of the suggestion made by Dr. Crowell to erect a memorial, and report to the next meeting of this Society.

Dr. J. T. Burrus, High Point: No class of men have rendered greater service or have done more for the winning of the war than the medical men of North Carolina. No men have suffered more without complaint, without asking for honor or reward, than the men of the medical profession of North Carolina. In the death of these men we have lost some of our most valuable fellows. It would be the height of ingratitude not to carry out the suggestion offered by Dr. Crowell, by placing a life-sized statue, not in some unseen and unvisited place, but over the door, where all who will may see the likeness of those of our

fellows who so nobly did their duty and fell in the service of their country. For this reason I most heartily second Dr. Munroe's motion.

The motion was unanimously carried. The following committee was appointed:

J. P. Munroe, Charlotte, *Chairman*
A. J. Crowell, Charlotte
L. B. McBrayer, Sanatorium
James M. Parrott, Kinston
J. T. Burrus, High Point

NORTH CAROLINA DOCTORS WHO SERVED WITH THE COLORS

The following is a roster of the doctors who served with the colors—corrected to April 1, 1919.

It was desired to give the rank attained by each Medical Officer, but this could not be secured. It is promised by the Surgeon General's Office and it is hoped that it can appear in the Transactions for 1920.

Alamance County:
A. Lacy Morrow, Swepsonville
*P. R. Brown, Swepsonville
J. J. Barefoot, Graham
R. S. Vass (col.), Burlington
C. T. Vernon, Burlington

Alexander County:
None

Alleghany County:
None

Anson County:
Chas. I. Allen, Wadesboro
J. M. Covington, Wadesboro
J. M. Davis, Wadesboro
J. D. Maynard, Wadesboro

Ashe County:
None

Avery County:
M. T. Long

Beaufort County:
A. K. Tayloe, Aurora
Allen H. Moore, Washington
Clarence M. Bynum, Aurora
John B. Bonner, Bonnerton

Bertie County:
E. W. Pugh, Winsdor
H. C. Willis, Merry Hill

Bladen County:
D. D. Clark, Clarkton
A. B. Holmes, Council
G. F. Bullard, Elizabethtown

Brunswick County:
J. Arthur Dosher, Southport

Buncombe County:
Grady M. Morgan, Morgan Hill
L. M. Griffith, Asheville
L. W. Beall, Asheville
Bernice Morgan, Morgan Hill
E. R. Cocke, Asheville
Frank J. Clemmenger, Asheville
M. H. Fletcher, Asheville
J. B. Greene, Asheville
E. V. Harbeck, Weaverville
W. P. Herbert, Asheville
J. S. Hopkins, Black Mountain
C. S. Jordan, Asheville
Ben Merriweather, Asheville
A. T. Pritchard, Asheville
Wm. H. Scruggs, Black Mountain
G. S. Tennent, Asheville
Thompson Fraser, Asheville
J. L. Adams, Asheville
G. C. Battle, Asheville
T. P. Cheesborough, Asheville
J. E. Cocke, Asheville
M. J. Costello, Asheville
W. M. Hollyday, Asheville
A. E. Johnson, Asheville
C. C. Orr, Asheville
J. C. Rich, Candler
P. H. Ringer, Asheville
B. R. Smith, Asheville
J. R. Williams, Asheville
W. L. Dunn, Asheville
A. F. Reeves, Asheville

Burke County:
J. W. Vernon, Morganton
Benjamin L. Long, Glen Alpine

Cabarrus County:
J. A. Hartsell, Concord
S. E. Buchanan, Concord
R. E. Watts

Caldwell County:
S. G. Sturgis, Lenoir
C. L. Wilson, Lenoir

Camden County:
None

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*Died in service.

Carteret County:
C. S. Maxwell, Beaufort

Caswell County:
None

Catawba County:
Frank H. Foard, Hickory, R. F. D.
Lock McCorkle, Newton
Gaither Hawn, Hickory
F. S. Steele, Hickory
J. H. Shufford, West Hickory
P. J. Klutz, Maiden
Glen Long, Catawba
Fred B. Foard, Hickory, R. F. D.

Chatham County:
Frank Wrenn, Siler City
*Percy Harward, Morrisville

Cherokee County:
Sam B. Patton, Patrick
C. V. Orr, Andrews
N. B. Adams, Murphy
Grover Wilkes, Andrews

Chowan County:
Robert B. Drane, Edenton

Clay County:
None

Cleveland County:
Thos. B. Gold, Lawndale
Chas. E. McBrayer, Shelby
Jack Mull, Casar
J. T. Cabaniss, Shelby
Geo. Oates, Grover
Dr. McNeill, Shelby

Columbus County:
J. M. Harper, Whiteville
L. D. Floyd, Cerro Gordo
H. B. Maxwell, Whiteville
R. B. Whitaker, Whiteville
H. F. Munt, Boardman

Craven County:
Dr. Lupton, New Bern
Dr. Howard, New Bern
R. D. V. Jones, New Bern
Raymond Pollock, New Bern

Cumberland County:
Junius Vann, Fayetteville
W. C. Melchor (col.), Fayetteville
J. DaCosta Highsmith, Fayetteville

Currituck County:
B. R. Allen
C. W. Preston
Clarence Bagley (col.)

Dare County:
W. W. Johnson, Manteo

Davidson County:
C. M. Griffith, Thomasville
Marvin A. Bowers, Thomasville

Davie County:
Garland Green

Duplin County:
J. W. Farrior, Kenansville
Dr. Robinson, Wallace

Durham County:
B. U. Brooks, W. Durham
Joseph Speed, Durham
Chas. A. Woodard, Durham
M. N. King, Durham
N. D. Bitting, Durham
Geo. T. Watkins, Durham
C. H. Shepherd (col.), Durham

Edgecombe County:
J. G. Raby, Tarboro
R. H. Royster, Tarboro
J. H. Cutchin, Whitakers
Geo. W. Mitchell, Macclesfield
Wm. W. Green, Tarboro
T. G. Williams, Conetoe
K. E. Miller, U. S. P. H. S., Tarboro

Forsyth County:
Lee R. Salmons, Winston-Salem
T. M. Chaney, Winston-Salem
S. D. Craig, Winston-Salem
Wortham Wyatt, Winston-Salem
John Thames, Winston-Salem
C. S. Lawrence, Winston-Salem
E. L. Lockett, Winston-Salem
Frederic Moir Hanes, Winston-Salem
C. E. Wooding, Winston-Salem
J. Roy Hegs, Clemmons
V. M. Long, Winston-Salem
Thos. W. Davis, Winston-Salem
S. W. Hurdle, Lewisville

Franklin County:
A. R. Winston, Franklinton
H. A. Newell, Louisburg
Claude Timberlake, Youngsville
J. B. Davis (col.), Louisburg
M. C. King (col.), Franklinton
R. F. Yarborough, Louisburg

*Died in service.

Gaston County:
W. B. Hunter, Gastonia
C. E. McLean, Belmont
J. A. Dimmett, Gastonia
Dr. Moore, Mt. Holly
Geo. R. Patrick, Lowell, R. F. D.
Rowland Clinton, Gastonia
H. M. Pressley, Belmont
Jas. A. Anderson, Gastonia
P. B. Hall, Belmont

Gates County:
H. C. Brooks, Sunbury
Edward Howell, Gates
Lewis Rawls, Gatesville
Leslie C. Carter, Hobbsville

Graham County:
None

Granville County:
R. T. Uhls, Franklinton, R. F. D.
W. N. Thomas, Oxford
B. K. Hays, Oxford
W. J. Booker (col.), Oxford

Greene County:
None

Guilford County:
N. G. Wilson, Summerfield
Walter F. Cole, Greensboro
F. J. Pate, Greensboro
H. H. Ogburn, Greensboro
Julian G. Thomas, Greensboro
Wm. J. McAnally, High Point
Dr. Wolf, Greensboro
Casper Jennings, Greensboro
T. M. Stanton, High Point
F. R. Taylor, High Point
H. F. Starr, Greensboro
A. S. Oliver, Greensboro
Anna M. Gove, Greensboro
C. W. Banner, Greensboro
Joseph H. Boyles, Greensboro
Ralph E. Dees, Greensboro
Joseph T. Burrus, High Point
E. C. Ashby, Greensboro
J. W. Long, Greensboro
Geo. B. Roberson, Greensboro
I. T. Mann, High Point
H. B. Hiatt, High Point

Halifax County:
R. P. Beckwith, Rosemary
K. Leggett, Hobgood
Dan Patchin, Roanoke Rapids
A. D. Morgan, Scotland Neck
T. C. Tinsley, Scotland Neck
V. W. Leggett, Hobgood

Harnett County:
J. S. Thompson, Dunn
L. J. Arnold, Lillington
F. R. Ruff, Duke
Geo. L. Fuquay, Coats

Haywood County:
J. Howell Way, Waynesville
J. F. Abel, Waynesville
F. M. Davis, Canton
Wm. G. Frances, Waynesville
Thomas Stringfield, Waynesville

Henderson County:
B. F. Cliff, East Flat Rock

Hertford County:
R. B. Benthall, Murfreesboro
Clayton Cley, Woodland

Hoke County:
S. W. Thompson, Sanatorium
Reuben A. McBrayer, Sanatorium
R. B. Wilkins, Raeford
J. G. Dickson, Raeford
Clyde Thomas, Raeford

Hyde County:
T. A. Mann, Fairfield
Preston Burrus, Fairfield
Lewis H. Swindell, Swan Quarter

Iredell County:
C. L. Sherrill, Stateville
W. D. McLelland, Mooresville
A. King, Mooresville
J. H. McLelland, Statesville
Jas. W. Davis, Statesville
Robert B. Hill, Statesville
Fred W. Rankin, Mooresville
P. J. Chester, Mooresville
R. A. Campbell, Statesville
L. O. Gibson, Statesville
F. A. Carpenter, Statesville
John C. Dye, Statesville

Jackson County:
C. Z. Candler, Dillsboro
Edmond J. Bryson, Cullowhee
Grover C. Wilkes, Sylva

Johnston County:
Thel Hooks, Smithfield
I. W. Mayerberg, Selma

W. E. Wilmerding, Selma, R. F. D.
G. B. Woodard, Kenly
G. S. Coleman, Kenly

Jones County:
Colin Shaw, Maysville

Lee County:
Evander McIver, Jonesboro
C. L. Scott, Sanford

Lenoir County:
Vance Perry, Kinston
Mercer C. Parrott, Kinston
A. L. Hyatt, Kinston
*S. J. Hawes, Dover

Lincoln County:
Henry Lee Sloan, Lincolnton

McDowell County:
D. M. McIntosh, Old Fort
Clay McColl, Marion
W. A. Robinson, Old Fort
Jas. Reynolds, Marion

Macon County:
S. H. Lyle, Franklin

Madison County:
Oliver L. Stringfield

Martin County:
W. H. House, Oak City
R. M. Buie, Williamston, R. F. D.
J. H. Saunders, Williamston

Mecklenburg County:
J. K. Ross, Charlotte
John Donnelly, Charlotte
Addison G. Brenizer, Charlotte
John W. McConnell, Davidson
H. W. McKay, Charlotte
Baxter Hunter, Charlotte
R. A. Moore, Charlotte
William Belk, Charlotte
D. R. Austin, Charlotte
J. P. Matheson, Charlotte
R. F. Lienbach, Charlotte
L. M. Fetner, Charlotte
*J. W. Squires, Charlotte
W. L. Orr, Matthews
William Allan, Charlotte
*M. C. Houser, Charlotte
L. W. Hovis, Charlotte
Myers Hunter, Charlotte
M. L. Townsend, Charlotte
Joe H. Caldwell, Charlotte
Wm. E. Wishart, Charlotte
J. W. Young, Charlotte
Jas. A. Bangle, Charlotte

Mitchell County:
A. E. Gouge, Bakersville

Montgomery County:
C. W. Armstrong, Troy
E. L. Dameron, Star

Moore County:
Chas. T. Grier, Carthage

Nash County:
J. A. Winstead, Nashville
M. R. Freeman, Bailey
G. C. Godwin, Nashville
W. Deans, Battleboro
J. C. Braswell, Whitakers
Henry Cutchens, Whitakers
A. C. McCall, Rocky Mount

New Hanover County:
H. A. Codington, Wilmington
W. T. Ruark, Wilmington
*Tate Moore, Wilmington
G. H. Croom, Wilmington
Wm. B. Hunter, Wilmington
Dr. Bangle, Wilmington
D. W. Green, Wilmington
Jos. W. Hooper, Wilmington
A. H. Harriss, Wilmington
Ernest S. Bulluck, Wilmington
E. T. Scott (col.), Wilmington
C. L. Pridgen, Wilmington
J. F. Robertson, Wilmington
John E. Wine, Wilmington
C. P. Bolles, Wilmington
J. B. LeGwin, Wilmington
Geo. E. Bowdoin, Wilmington
Geo. C. Andes, Wilmington
Foster Burnett (col.), Wilmington
Wm. C. Peterson, Wilmington

Northampton County:
W. R. Parker, Woodland
C. P. Parker, Garysburg
Paul G. Parker, Potecasi
J. C. Vaughan, Rich Square

Onslow County:
R. L. Daniels, Swansboro
R. H. Noell, Swansboro

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*Died in service.

Orange County:
L. H. Webb, Chapel Hill
R. B. Hayes, Hillsboro
E. A. Abernethy, Chapel Hill
J. B. Bullitt, Chapel Hill

Pamlico County:
R. E. Watts, Oriental

Pasquotank County:
Jos. L. McCabe, Elizabeth City
R. B. Davis, Weeksville
W. A. Peters, Elizabeth City

Pender County:
J. T. Hoggard, Atkinson

Perquimans County:
T. S. McMullan, Hertford

Person County:
B. A. Thaxton, Roxboro
S. S. Montague, Roxboro
W. T. Long, Roxboro

Pitt County:
J. C. Greene, Greenville
Carl Pace, Greenville
Dr. Carr, Farmville
M. T. Edgerton, Greenville
C. Jasper Ellen, Greenville
Cecil Garrenton, Bethel
H. P. Moseley, Farmville
Chas. O'H. Laughinghouse, Greenville

Polk County:
W. W. Gray, Tryon
Marion C. Palmer, Tryon
N. C. Thomas, Tryon

Randolph County:
J. F. Miller, Asheboro

Richmond County:
William Moncure, Hamlet
F. B. Garrett, Rockingham
Dr. Quick (col.), Covington
Neil G. Nicholson, Powelton

Robeson County:
N. H. Andrews, Rowland
Russell Beam, Lumberton
Lawrence R. Kirkpatrick, Maxton
Wm. P. McKay, Red Springs
Fred Nash, St. Pauls
Claude Poole, St. Pauls
C. S. Fisher (col.), Maxton

Rockingham County:
M. B. Abernethy, Reidsville
Harvey Robertson, Reidsville
S. W. Hurdle, Spray
J. K. Stockard, Reidsville
Paul W. Fetzer, Reidsville

Rowan County:
H. T. Trantham, Salisbury
C. M. Van Poole, Salisbury
J. H. Razzelle, Salisbury
G. W. Choate, Rockwell
Mason Brawley, Salisbury
F. B. Spencer, Salisbury
Irvin E. Shafer, Salisbury
John M. Earnhardt, Rockwell

Rutherford County:
Wm. Ernest Brackett, Caroleen
F. W. H. Logan, Rutherfordton
Henry Norris, Rutherfordton
J. Rush Shull, Cliffside

Sampson County:
E. R. Hardin, Clinton
Bruce F. Butler, Clinton
John D. Kerr, Clinton
David Sloan, Ingold
Wm. Sloan, Ingold
H. C. Turlington, Clinton
G. C. Beard, Kerr

Scotland County:
N. B. Cannady, Laurinburg
Fairley James, Laurinburg
Jesse W. Wilcox, Laurel Hill

Stanly County:
T. A. Hathcock, Norwood
J. N. Anderson, Albemarle
L. F. McGruder, Albemarle
L. V. Dunlap, Albemarle
F. C. Shugart, Albemarle
C. E. Lyday, Albemarle

Stokes County:
Beverly Jones, Walnut Cove
Dr. Bernard, Pinnacle
Paul Petree, Germantown

Surry County:
Geo. W. Evans, Stony Knoll
A. F. Jones, Ararat
H. B. Rowe, Mt. Airy
E. C. Ashby, Mt. Airy
R. M. Lancaster, Dobson
Geo. T. Divers, Stuart

Swain County:
Ed. J. Bryson, Fontana
Percival R. Bennett, Bryson City
J. L. Reeves, Whittier

Transylvania County:
Hall Lyday, Brevard
Virgil Osborne, Brevard
A. E. Lyday, Penrose
Thomas Summey, Brevard
E. S. English, Brevard

Tyrrell County:
None

Union County:
R. L. Payne, Monroe
R. J. Lanville, Wingate
L. E. Guin, Waxhaw
H. D. Stewart, Monroe

Vance County:
D. C. Absher, Henderson
B. G. Allen, Henderson
W. H. Bryant (col.), Henderson
L. C. McIntosh, Henderson
Earl Watkins, Henderson
J. M. Huff, Henderson, R. F. D. 4
Jas. Royster, Townsville
Thomas Royster, Townsville
F. O. Swindell, Kittrell
N. H. Crews, Henderson
Edwin F. Fenner, Henderson
Jas. W. Dickie, Henderson, R. F. D.
Thomas Tinsley (col.), Henderson
T. B. Henderson, Henderson

Wake County:
C. W. Bell, Raleigh
H. G. Turner, Raleigh
Louis N. West, Raleigh
T. E. Wilkerson, Raleigh
R. S. Stevens, Raleigh
A. S. Pendleton, Raleigh
John B. Powers, Wake Forest
John McKee, Raleigh
R. S. McGeachy, Raleigh
*John E. Ray, Raleigh
Alfred Mordecai, Raleigh
H. A. Thompson, Raleigh
A. C. Campbell, Raleigh
J. L. Moore, Wendell
R. P. Noble, Raleigh
W. T. Carstarphen, Wake Forest
Ivan M. Procter, Raleigh
E. B. Ferebee, Raleigh
A. J. Ellington, Raleigh
W. S. Cozart, Holly Springs
L. F. Robinson, Raleigh
A. W. Knox, Raleigh
M. R. Gibson, Raleigh
C. O. Abernethy, Raleigh
W. P. Jacocks, Raleigh

Warren County:
W. D. Rodgers, Warrenton

Washington County:
Hickman Ray, Plymouth
Claudius McGowan, Plymouth
Samuel A. Alexander, Plymouth (Washington, D. C.)
Jas. E. Andrews, Plymouth (Annapolis, Md.)

Watauga County:
Jno. Jones, Boone

Wayne County:
G. B. Morris, Mt. Olive
H. M. Person, Saulston
R. W. Spicer, Goldsboro
Marshall Hood
P. C. Carter, Goldsboro
Ralph Daniels, Goldsboro
C. F. Strosnider, Goldsboro
Paul Best, Goldsboro
McI. Tatum, Mt. Olive

Wilkes County:
M. L. Townsend, North Wilkesboro
Wm. A. Trivett, Osbornville

Wilson County:
M. M. Saliba, Wilson
Chas. L. Swindell, Wilson
J. C. Braswell, Whitakers

Yadkin County:
J. T. Benbow, East Bend
Floyd C. Shugart, Jonesville

Yancey County:
W. C. McCourry, Eskota

County not known:
Jasper V. Howard
Harry L. Brockman
John M. Huff
John C. Taylor
Ernest W. Larkin

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*Died in service.

Chas. S. Norburn
Brockton R. Lyon
Wm. F. McAnally
O. C. Foote
J. C. Brantley
Louis H. Williams
Odren D. King
Jas. M. Howard
Thos. L. Morrow
Cola Costello
Memory F. Boyles
Marshall H. Hook
Wm. F. Crone
Robert C. Sample
Clifton F. West
Russell M. Cox
John W. Gainey
E. B. Whitehurst

Capt. A. W. Knox, M.C., offered his services to the War Department, but was at first refused on account of his supposed age. Later he was accepted and commissioned with the rank of captain and assigned as medical aide and special advisor to the Governor of North Carolina, and served in that capacity until the end of the war.

NOTE:—The names in the foregoing list were obtained from one doctor in each county. We have endeavored to make them as nearly correct as possible, but can not guarantee that all North Carolina doctors who were with the colors appear, as we were unable to obtain an authentic list from the Government.

VOLUNTEER MEDICAL SERVICE CORPS OF NORTH CAROLINA

As the war went on, the importance of the work of the physician in the prevention of disease in the army and the care of the wounded became more and more important, and it was desired that a roster of the members of the medical profession throughout the United States should be secured, who would agree to render such service as might be needed either at home or abroad, in case they were called upon, the same having been recommended by the Council of National Defense.

The following shows the officers of the Executive Committee for North Carolina and the volunteers, arranged alphabetically by counties:

COUNCIL OF NATIONAL DEFENSE
MEDICAL SECTION
WASHINGTON

October 25, 1918

From: Volunteer Medical Service Corps,
Council of National Defense.

To: Dr. L. B. McBrayer,
Sanatorium, North Carolina.

Subject: Volunteer Medical Service Corps.

1. Replying to your letter of September 16th, the following is the Executive Committee for the State of North Carolina:

Lewis B. McBrayer, M.D., Chairman,	Sanatorium
W. S. Rankin, M.D., Secretary,	Raleigh
Julian M. Baker, M.D.,	Tarboro
Andrew J. Crowell, M.D.,	Charlotte
Jacob F. Highsmith, M.D.	Fayetteville
James M. Parrott, M.D.,	Kinston
Martin L. Stevens, M.D.,	Asheville
Cyrus Thompson, M.D.,	Jacksonville

By direction of the President of the
Volunteer Medical Service Corps.

G/L (Signed) E. K. GRIMM.

Alamance County:

Anderson, Chas. A., Burlington
Coddell, Stephen W., Elon College
Faucette, Thos. Smith, Burlington
Freeman, Richard Allen, Burlington
Goley, William Rankin, Graham
McPherson, C. W., Burlington
McPherson, Robert Gray, Saxapahaw
Mann, Edward Delavin, Saxapahaw
Montgomery, Harry M., Burlington
Moser, William Dexter, Burlington
Murphy, William Egbert, Mebane
Parker, J. R., Burlington
Pickett, John Alfred, Burlington
Spoon, Chas. E., Kimesville
Tate, William Newton, Mebane
Taylor, Jas. Nathaniel, Graham
Thompson, J. M., Mebane

Walker, Walter Edwin, Burlington
Walker, Levi Albert, Burlington
Walters, Chas. Manley, Union Ridge
Weatherly, John Bruce, Altamahaw
Wilkins, Java Cleveland, Haw River
York, N. D., Mebane

Alexander County:
Crouch, Thos. Dalton, Stony Point
Crowson, S. T., Taylorsville
Edwards, Addie M., Taylorsville
Leeper, Donald Harper, Hiddenite

Alleghany County:
Black, O. R., Sparta
Doughton, J. L., Sparta
Reeves, B. E., Laurel Springs
Smith, H. Talmage, Anna

Anson County:
Ashe, E. S., Wadesboro
Boyce, John Mason, Polkton
Chapman, Geo. Memory, Morven
Dunlap, Jas. Mendenhall, Ansonville
Hart, J. E., Wadesboro
Ross, R. D., Wadesboro
Shellem, Oliver Wm., Ansonville
Smith, L. C., Polkton
Thomas, E. L. (col.), Wadesboro
Wyatt, J. L., Lilesville

Ashe County:
Blevins, M., Jefferson
Jones, Thomas J., Lansing
Jones, Thomas L., Lansing
Perkins, S. L., Jefferson
Testerman, J. C., Jefferson

Avery County:
Burleson, Wm. B., Plumtree
Proffitt, T. J., Elk Park
Sloop, E. H., Crossnore
Sutton, Julian Rush, Elk Park
Tate, Wm. Cummings, Banner Elk

Beaufort County:
Bulloch, W. J., Belhaven
Blount, John Guy, Washington
Carter, Henry W., Washington
Jacocks, Richard C. (col.), Belhaven
Kafer, Oswald O., Edwards
Mariner, Napoleon B., Belhaven
Nicholson, John L., Washington
Nicholson, John Thorne, Bath
Nicholson, P. A., Washington
Nicholson, Samuel T., Washington
Potter, W. T., Aurora
Rodman, J. C., Washington
Sawyer, Chas. J., Windsor
Small, W. P., Washington
Windley, C. T., Belhaven

Bertie County:
Evans, Leslie Ballard, Windsor
Garriss, Frank Henry, Lewiston
Ruffin, Joseph Blount, Powellsville

Bladen County:
Clark, E. S., Clarkton
Hutchinson, S. S., Hope Mills
Lucas, W. H. G., White Oak
Singletary, Geo. C., Clarkton

Brunswick County:
Boyette, Middleton, Southport
Brown, Fletcher Locke, Southport
Goley, Wm. R., Shallotte

Buncombe County:
Adams, J. L., Asheville
Ambler, Charles P., Asheville
Anderson, J. G., Asheville
Archer, Isaac James, Black Mountain
Baker, Walter English, Arden
Battle, Samuel W., Asheville
Beets, Chas., Asheville
Bown, Herbert Harry, Asheville
Braddy, Wade H., West Asheville
Brookshire, Harley Gaskill, Asheville
Brownson, W. C., Asheville
Buckner, Rufus Gaston, Asheville
Calloway, Arthur W., Asheville
Cocke, C. H., Asheville
Cocke, Jere Ellis, Asheville
Denchfield, Arthur L., Asheville
Elias, Lewis W., Asheville
Gardner, Garrett Dewey, Asheville
Gill, Jas. N., Weaverville
Glenn, Eug. B., Asheville
Griffin, Wm. R., Asheville
Griffith, Franklin Webb, Asheville
Harris, Isaac Arthur, Weaverville
Hilliard, W. D. Asheville
Hunnicutt, Wm. Joseph, Asheville
Huston, John Walker, Asheville
Knoefel, Arthur E., Black Mountain
Lord, Margery J., Asheville
McClintock, Chas. T., Asheville
McCracken, C. M., Fairview

Millender, Marion C., Asheville
Orr, Chas. C., Asheville
Orr, Porter Bynum, Asheville
Parker, Alice C., Candler
Parker, Horace Pickney, Candler
Powell, Wiley Vernon, Asheville
Reeves, Riley Jefferson, Leicester
Reynolds, C. V., Asheville
Russell, E. Reid, Asheville
Scott, Robert Crawford, Asheville
Terry, P. R., Asheville
Toole, Arthur Fulkerson, Asheville
Venable, W. H., Asheville
Von Ruck, Karl, Asheville
Walker, J. W. (col.), Asheville
Weaver, H. B., Asheville
Whittington, Willard P., Asheville
Wilder, Eugene, Asheville
Williams, John Hey, Asheville
Willis, Arthur P., Candler
Wohlfarth, Justin, Asheville
Zimmerman, C. St. V., Asheville

Burke County:
Anderson, J. R., Morganton
Goode, T. V., Jr., Morganton
Griffin, Mark Alexander, Morganton
Houck, Albert, Morganton
Kibler, Wm. H., Valdese
McCampbell, John, Morganton
Phifer, E. W., Morganton
Riddle, Joseph Bennett, Morganton
Street, Claudius A., Linville Falls
Warlick, Eli Solomon, Morganton
Watkins, Fonso Butler, Morganton

Cabarrus County:
Caldwell, Daniel G., Concord
Cauble, H. H., Kannapolis
Flowe, Robert F., Kannapolis
Gouger, Geo. J., Concord
Grier, S. A., Harrisburg
King, Richard M., Concord
MacFadyen, Paul R., Concord
Patterson, John A., Concord
Rankin, Samuel Wharton, Concord
Reed, J. F., Concord
Sossoman, John C., Midland
Wadsworth, William H., Concord
Wallace, John Woodly, Concord
Watkins, Frederick H. (col.), Concord
Yow, Ira Augustus, Georgeville

Caldwell County:
Carter, Geo. Hill, King's Creek
Coffey, Lawrence H., Valmead
Goodman, A. B., Lenoir
Jones, Atlas D., Granite Falls
McNairy, Margaret Caroline, Lenoir
Pitts, Walter Ingold, Lenoir
Russell, Chas. Richard, Granite Falls
Sturgis, Margaret C., Lenoir
White, William Moore, Lenoir

Camden County:
Ferebee, C. G., South Mills
Stevens, William L., Shiloh

Carteret County:
Ball, M. W., Newport
Duncan, C. L., Beaufort
Loftin, Preston Brooks, Beaufort
Mason, Chas. North, Newport
Maxwell, Clarence S., Beaufort
Reed, D. Hugh, Gloucester
Royal, B. F., Morehead City
Sharp, Leedom, Morehead City

Caswell County:
Badgett, J. F., Pelham, R. F. D.
Swann, Joseph F., Semora
Tucker, F. P., Milton
Warren, Robert F., Prospect Hill

Catawba County:
Abernethy, H. L., Hickory
Bandy, W. G., Maiden
Blackburn, Thomas C., Hickory
Campbell, J. R., Newton
Collins, J. B. (col.), Vineland
Everhart, W. H., Newton
Flowers, Geo. E., Hickory
Ford, Fred T., Hickory
Herman, Frank L., Conover
Hunsucker, Chas. Lamar, Hickory
Klutz, P. J., Maiden
Long, Fred. Y., Catawba
Menzies, H. Chas., Hickory
Moser, D. M., Claremont
Shipp, Geo. W., Newton
Shipp, William Thomas, Newton
Smith, P. M., Catawba
Stevenson, Thos. F., Hickory
Stewart, J. J., Mt. Holly
Whiteside, J. C., Maiden
Wilson, Wm. E., Sherrill's Ford
Yount, Jacob H., Newton

Chatham County:
Denson, H. A., Bennett
Edwards, J. D., Siler City
Hackney, Ben Hall, Bynum
Kirkman, T. A., Siler City
McManus, W. L., Bonlee
Palmer, Robert William, Gulf

Cherokee County:
Abernethy, J. F., Murphy
Highway, S. C., Murphy
Meroney, B. B., Murphy
Morrow, Wm. C., Andrews
Patton, William Oscar, Murphy
Tidwell, John Edgar, Andrews
Webb, B. G., Andrews
Wells, Horace N., Murphy

Chowan County:
Cason, Henry M. S., Edenton
Dillard, Richard, Edenton
Holley, Oscar L. (col.), Edenton
McMullan, John H., Edenton
Warren, J. W., Edenton

Clay County:
Bell, John Cleveland, Maysville

Cleveland County:
Anthony, Jas. E., Kings Mountain
Aydlette, J. P., Earl
Champion, Clifton Otice, Mooresboro
Edwards, Forest D., Lawndale
Ellis, R. C., Shelby
Gibbs, E. W., Mooresboro
Gold, G. M., Lattimore
Grigg, W. T., Lawndale
Hamrick, Timmons G., Shelby
Hood, John S. B., Kings Mountain
Hord, J. G., Kings Mountain
Houser, Emmanuel Alvin, Fallston
Hunt, Jas. Franklin, Casar
Lafferty, J. S., Shelby
Lattimore, Everett B., Shelby
Lee, Lawrence Victor, Lattimore
Lord, A. D. (col.), Shelby
Mitchell, William F., Shelby
Oates, Geo., Grover
Palmer, B. H., Shelby
Royster, S. S., Shelby
Wells, James M., Lawndale

Columbus County:
Baggett, Leaman, Tabor
Cox, G. S., Tabor
Floyd, Alvo Giles, Fair Bluff
Moore, Tilon Vance, Acme
Thompson, J. R., Lake Waccamaw

Craven County:
Barker, Christopher S., New Bern
Caton, Geo. A., New Bern
Duffy, Leinster, New Bern
Duffy, Richard Nixon, New Bern
Fisher, Hunter Walker, New Bern
Gibbs, Norfleet Mann, New Bern
Milbee, Russel Oscar, Cove City
Moore, Henry S. (col.), New Bern
Potts, Fred L., Vanceboro
Primrose, R. S., New Bern
Rhem, Jos. Franklin, New Bern
Smith, Barton Brown, Bridgeton
Strowd, Wm. A., Dover
Ward, Josiah Marion, New Bern
Watson, Walter Tolson, New Bern

Cumberland County:
Allgood, R. A., Fayetteville
Averitt, Kirby G., Cedar Creek
Gilbert, J. C., Hope Mills
Henderson, Benj. (col.), Fayetteville
Highsmith, Seavy, Fayetteville
Jordan, Wm. S., Fayetteville
Lilly, Jas. M., Fayetteville
MacKethan, David G., Fayetteville
MacKethan, J. A., Fayetteville
McLean, J. W., Godwin
McNeill, J. W., Fayetteville
Melchor, P. N. (col.), Fayetteville
Olive, Percy W., Wade
Pittman, Raymond L., Fayetteville
Smoot, M. Le Roy, Fayetteville
Styron, Nathan H. (col.), Fayetteville
West, T. M., Fayetteville

Currituck County:
Bagley, J. C., Snowden
Baum, Julian C., Poplar Branch
Cowell, William H., Shawboro
Gatling, Oscar A., Knotts Island
Griggs, W. T., Poplar Branch
Mann, Stuart, Moyock
Newbern, John M, Jarvisburg

Dare County:
Gates, F. P., Manteo
Jones, Edward Warren, Hatteras

Davidson County:
Anderson, Abel, Denton

Buchanan, E. J., Lexington
Cathell, J. E., Linwood, R. 1
Clodfelter, Chas. M., Lexington
Hobgood, Jas. E., Thomasville
Julian, Charles Adrian, Thomasville
Long, Everett Fletcher, Lexington
Mock, Franklin Lowe, Lexington
Phillips, Clyde Columbus, Wallburg
Smith, J. Alexander, Lexington
Terry, J. R., Lexington
Vestal, Willis Jasper, Lexington
Yokeley, R. V., Denton
York, Alexander Arthur, Southmont
Zimmerman, R. U., Lexington

Davie County:

Byerly, Andrew Baxter, Cooleemee
Evans, Geo. T. Cooleemee
Rodwell, J. W., Mocksville
Speas, W. P., Cooleemee

Duplin County:

Carr, Ransom Lee, Rose Hill
Carroll, John William, Wallace
Kennedy, G. W., Beulahville
Morton, J. X., Faison
Quinn, Robert Franklin, Magnolia
Williams, James Marcus, Warsaw
Williams, Robert Cleveland, Wallace

Durham County:

Adams, C. A., Durham
Adkins, M. T., Durham
Boddie, Needham P., Durham
Booker, Lyle S., Durham
Boone, W. H., Durham
Bowling, Edwin Holt, Durham
Boyles, A. C., Bahama
Cheatham, Archibald, Durham
Coiner, Norval Letcher, Durham
Fassett, Burton W., Durham
Felts, Robert Lee, Durham
Graham, Joseph Dewey, Durham
Hicks, C. S., Durham
Hicks, Wm. N., Durham
Hill, C. D., Durham
Johnson, Norman McLeod, Durham
Jordan, A. C., Durham
Kernes, T. C., West Durham
Lyon, E. H., Bahama
Manning, J. M., Durham
Mills, Joseph Napoleon, Durham
Montague, Seth J., Durham
Moore, Aaron McD. (col.), Durham
Nichols, Rhodes E., Gorman
Olive, W. W., Durham
Page, F. T., (col.), Durham
Roberson, Foy, Durham
Roberson, M., Durham
Ross, George High, East Durham
Sterrett, J. R., Durham
Strudwick, Wm. C. (col.), Durham
Sweeney, John, Durham

Edgecombe County:

Anderson, James Henry, Tarboro
Armstrong, L. P., Rocky Mount
Barber, Y. M., Macclesfield
Bryan, James William, Rocky Mount
Burnett, Peter William, Rocky Mount
Caine, Jesse Edward, Tarboro
Flemming, Major Ivy, Rocky Mount
Harrell, Samuel N., Tarboro
Hines, Edward Routh, Rocky Mount
Large, Hiram Lee, Rocky Mount
McMillan, A. S. (col.), Tarboro
Morey, Mary, Tarboro
Phillips, J. J., Tarboro
Savage, Rupert Leroy, Rocky Mount
Speight, J. P., Rocky Mount
Speight, Richard H., Jr., Whitakers
Staton, L. L., Tarboro
Thigpen, Wm. Jordan, Tarboro
Wimberly, Geo. L., Jr., Rocky Mount
Wimberly, Joseph P., Rocky Mount
Wooten, Amos M., Jr., Pinetops

Forsyth County:

Brown, Thomas J., Winston-Salem
Bruce, W. H. (col.), Winston-Salem
Bulla, A. Chester, Winston-Salem
Bynum, John, Winston-Salem
Carlton, Romulus Lee, Winston-Salem
Cunningham, I. S., Winston-Salem
Dalton, Davis N., Winston-Salem
Davis, A. P., Winston-Salem
Dowdy, James Ernest, Winston-Salem
Edwards, Albert D., Winston-Salem
Fearington, Jos. P., Winston-Salem
Gray, Eugene Price, Winston-Salem
Hall, H. H. (col.), Winston-Salem
Hammack, John C., Walkertown
Jenkins, Robert Lee, Winston-Salem
Johns, I. L., Winston-Salem
Johnson, Wingate M., Winston-Salem

Keiger, Oscar R., Winston-Salem
Nicholson, John P., Winston-Salem
Paddison, John R., Jr., Kernersville
Pepper, John Kerr, Winston-Salem
Perkins, John R., Winston-Salem
Pfohl, Samuel F., Winston-Salem
Schallert, Paul Otto, Winston-Salem
Schaub, O. P., Winston-Salem
Strickland, Edward F., Bethania
Stone, G. E., Tobaccoville
Valk, A. DeTalma, Winston-Salem
Wall, R. L., Winston-Salem
Whittington, J. B., Winston-Salem
Wiggins, John Carroll, Winston-Salem

Franklin County:
Beam, Hugh Martin, Wood
Bobbitt, E. H., Louisburg
Burt, Samuel Perry, Louisburg
Davis, Judge Bustee (col.), Louisburg
Harris, John Henry, Franklinton
Henderson, Richard B., Franklinton
Johnson, Bayard Cleveland, Bunn
Perry, E. M., Louisburg
Simpson, William Preston, Louisburg
Timberlake, Richard E., Youngsville
Williams, John B., Gupton

Gaston County:
Adams, C. E., Gastonia
Caldwell, J. M., Gastonia
Dimmette, J. A., Gastonia
Eddleman, H. M., Gastonia
Erwin, Herbert J., Gastonia
Garrison, D. A., Gastonia
Glenn, H. F., Gastonia
Glenn, L. N., Gastonia
Houser, Wm. H., Cherryville
Jenkins, J. H., Gastonia
McAdams, Charles R., Belmont
McCoy, Thos. M., Mt. Holly
Miller, Robert Carlyle, Mayworth
Patrick, L. N., Gastonia
Pugh, C. H., Stanley
Quickel, T. C., Gastonia
Reid, Jas. W., Lowell
Rhyne, Robert E., Mt. Holly
Rowe, R. H., Bessemer City
Self, Lemuel Lester, Cherryville
Taylor, Benj. C., Stanley
Utley, Harry Gibbons, Gastonia
Wilkins, S. A., Dallas
Wilson, F. G., Gastonia

Gates County:
Corbell, Edwin F., Sunbury

Graham County:
Brock, George F., Brock
Howell, Swinfield F., Robbinsville
Maxwell, Martin T., Robbinsville
Styles, Allen Fletcher, Robbinsville

Granville County:
Booth, Thos. L., Oxford
Bullock, W. B., Hester
Cannady, S. H., Oxford
Daniel, N. C., Oxford
Hardee, Parrott R., Stem
Hester, John Roger, Hester
Holloway, Oscar W., Northside
Meadows, Elijah B., Oxford, R. 1
Morris, Joseph Algernon, Oxford
Sikes, Gennada Thomas, Creedmoor
Taylor, Wm. L., Stovall
Thompson, Jos., Creedmoor
Watkins, G. S., Oxford

Greene County:
Carroll, J. L., Hookerton
Edwards, G. C., Hookerton
Harper, J. H., Snow Hill
Murphy, Wm. B., Snow Hill
Whittington, W. W., Snow Hill

Guilford County:
Ashworth, Walter Clark, Greensboro
Austin, J. W., High Point
Battle, J. T. J., Greensboro
Best, B. W., Greensboro
Brooks, Z. T., Greensboro
Coe, Samuel S., High Point
Cole, W. F., Greensboro
Cordice, J. W. V. (col.), Greensboro
Davis, W. C., Summerfield
Dees, Ralph Erastus, Greensboro
Dees, Rigdon O., Greensboro
Dellinger, Jas. E. (col.), Greensboro
Dick, Julius Vance, Gibsonville
Dodson, H. H., Greensboro
Duncan, G. F., High Point
Foscue, John Ed., Jamestown
Gaylord, C. J. H., High Point
Gerran, G. A. (col.), High Point
Gilmer, Charles Stewart, Greensboro
Harrison, Edmund, Greensboro

Hiatt, H. B., High Point
Hughes, William H., Greensboro
Hyatt, Frederick C., Greensboro
Jarboe, Parran, Greensboro
McAnally, Wm. J., High Point
McCain, Hugh White, High Point
McCracken, Jesse F., Guilford College
Miles, May Sallie, Greensboro
Norman, Geo. W., Pomona
Prevette, Isaac, Greensboro
Richardson, William J., Greensboro
Roberson, Charles, Greensboro
Sebastian, S. P., Greensboro
Smith, Owen, High Point
Stamey, Enock L., Greensboro
Stanton, D. A., High Point
Stewart, C. C. (col.), Greensboro
Stewart, Joseph T., Summerfield
Stirewalt, N. S., Greensboro
Tyson, T. D., Pleasant Garden
Waddy, J. C. (col.), Greensboro
Williams, B. B., Greensboro
Williams, J. A., Greensboro
Wilson, A. R., Greensboro

Halifax County:

Alston, Willis, Jr., Littleton
Browning, Benj. Ray, Littleton
Bynum, Archie M., Thelma
Clark, H. I., Scotland Neck
Flemming, William LeRoy, Enfield
Furgerson, Henry B., Halifax
Harrison, A. S., Enfield
Jarman, F. G., Rosemary
Kitchin, Thurman D., Scotland Neck
Long, Thomas W. M., Roanoke Rapids
McRae, Neill, Littleton
Morehead, R. P., Weldon
Nicholson, B. M., Ringwood
Norman, J. H., Tillery
Palmer, Horace, Hollister
Picot, L. J., Littleton
Pierce, S. B., Weldon
Pitman, J. H. (col.), Scotland Neck
Register, Frank M., Tillery
Smith, Oscar F., Scotland Neck
Tinsley, James Albert, Weldon
Whitaker, F. C., Enfield
Whitaker, Luther T., Enfield
Zollicoffer, A. R., Weldon
Zollicoffer, D. B., Weldon

Harnett County:

Barefoot, Mordecai Lee, Dunn
Codrington, Conrad B., Dunn
Coltrane, W. E., Dunn
Denning, Ollen Lee, Dunn
Halford, Joseph W., Lillington
Hicks, I. F., Dunn
Highsmith, Chas., Dunn
Holt, W. P., Duke
McKay, J. F., Buies Creek
Roberts, H. C., Coats
Sexton, C. H., Dunn
Warren, R. L., Dunn

Haywood County:

McCracken, John R., Waynesville
McFadyen, H. L., Waynesville
Stringfield, Samuel L., Sunburst
Wilson, Joseph Edwin, Canton

Henderson County:

Brown, Jas. S., Hendersonville
Drafts, Andrew B., Hendersonville
Egerton, J. L., Hendersonville
Few, Columbus, Hendersonville
Johnson, L. L., Fletcher
McPheeters, S. B., Hendersonville
Mallett, Eugene P., Hendersonville
Morse, L. B., Hendersonville
Russell, L. P., Fletcher
Sumner, T. W., Fletcher

Hertford County:

Burbage, T. I., Como
Futrell, L. M., Murfreesboro
Gary, R. H., Murfreesboro
Greene, Arthur Wesley, Ahoskie
Harrell, Geo. N., Murfreesboro
Mitchell, Jesse Henry, Ahoskie
Mitchell, Paul H., Ahoskie
Pollard, W. B., Winton
Powell, J. A., Harrellsville

Hoke County:

Brown, George W., Raeford
Dickson, Albert Pickett, Raeford
Graham, Geo. A., Raeford
Juat, John Francis, Raeford
McBrayer, L. B., Sanatorium
McCain, Paul Presley, Sanatorium
Spruill, Joseph L., Sanatorium

Hyde County:

Mann, James E., Lake Landing

Iredell County:
Anderson, T. E., Statesville
Bell, Andrew E., Mooresville
Campbell, Archibald A., Statesville
Carpenter, Forest A., Statesville
Cloninger, Lawson V., Statesville
Cocke, George W., Mooresville
Gibson, Lauren O., Statesville
Gilmore, Willis D., Mooresville
Hall, Eugenius A., Dunlap
Hill, W. J., Statesville
Jurney, P. C., Turnersburg
Little, Espy Eugene, Statesville
Long, Henry Fletcher, Statesville
McElwee, R. S., Statesville
McLaughlin, John E., Statesville
Nicholson, Clyde Richard, Harmony
Nicholson, M. M. Parker (Mrs.), Harmony
Nicholson, William G., Harmony
Talley, J. S., Troutmans
Taylor, G. W., Mooresville
Yount, E. McDuffie, Statesville

Jackson County:
Hooper, Delos Dexter, Sylva
Nichols, Alvan Alexander, Sylva
Nichols, Asbury Sullivan, Sylva

Johnston County:
Eason, Oscar, Princeton
Furlonge, Charles W., Smithfield
Grady, J. C., Kenly
Griffin, T. A., Clayton
Hocutt, Battle Applewhite, Clayton
Lee, Sanders P. Jethrew, Benson
McCullers, Eugene H., Clayton
McLemore, George A., Clayton
Martin, J. F., Benson
Mayerberg, Israel Wallace, Selma
Muns, Leonard A., Smithfield
Noble, R. J., Selma
Person, John Bryant, Jr., Selma
Rose, Abraham Hewitt, Smithfield
Surles, Junius B., Four Oaks
Vick, George Davis, Selma
Young, Joseph Judson, Clayton

Jones County:
Bender, Ernest L., Pollocksville
Hammond, A. F., Pollocksville

Lee County:
Lutterloh, I. H., Sanford
McIver, Lynn, Sanford
Monroe, J. P., Sanford
Monroe, Wm. A., Sanford
Snipes, E. P., Jonesboro
Toney, E. E. (col.), Sanford
Watson, Leon, Broadway

Lenoir County:
Adams, Lytle C., La Grange
Bynum, C. H. (col.), Kinston
Hardy, Ira M., Kinston
Hargrove, Wm. F., Kinston
Harrison, Joseph P., Kinston
Hodges, James Marcus, La Grange
Hyatt, A. L., Kinston
Hyatt, Harry O., Kinston
Johnson, Hardy, Pink Hill
Kornegay, G. E., Jr., Kinston
McNairy, Charles Banks, Kinston
Mitchener, James Samuel, Kinston
Moseley, Z. V., Kinston
Parrott, A. D., Jr., Kinston
Parrott, William T., Kinston
Smithwick, John W. P., La Grange
Tull, Henry, Kinston
Weyher, V. E., Kinston
Whitaker, Frederick A., Kinston
Whitaker, Frederick Stanly, Kinston
Woodley, C. B., Kinston
Wooten, Richard William, Kinston

Lincoln County:
Abernethy, Horace N., Denver
Costner, G. H., Lincolnton
Elliott, William F., Lincolnton
Gamble, J. R., Lincolnton
Hoover, Charles Henry, Crouse
Killian, R. B., Lincolnton
Kiser, W. C., Reepsville
Lee, Richard E., Lincolnton
Saine, Jno. W., Lincolnton
Thompson, Claude D., Lincolnton
Wise, J. S., Lincolnton

McDowell County:
Ashworth, B. L., Marion
Johnson, John B., Old Fort
Jonas, J. Frank, Marion
Justice, Gaston Bailey, Marion
Kirby, Guy Smith, Marion
Reynolds, James Green, Marion

Robinson, Frank, Old Fort
Robinson, W. A., Old Fort

Macon County:

Horsley, Howard Theodore, Franklin

Madison County:

Baird, J. H., Mars Hill
Baird, John William, Mars Hill
Burnett, O. V., Big Laurel
English, Isaac LaFayette, Faust
Moore, J. N., Marshall
Packard, Geo. H., White Rock
Robinson, Willard F., Mars Hill
Sprinkle, Charles Nichols, Marshall
Tilson, Jacob Carson, Marshall

Martin County:

Godwin, Grover C., Williamston
Hargrove, R. H., Robersonville
Lloyd, R. A. (col.), Williamston
Long, Benjamin LaFayette, Hamilton
Long, Edgar Miller, Hamilton
Nelson, R. J., Robersonville
Rhodes, J. S., Williamston
Smithwick, J. E., Jamesville
Ward, J. E., Robersonville
Ward, Vernon A., Robersonville
Williams, John Watkin, Everetts
York, Hugh Brantley, Williamston

Mecklenburg County:

Abernethy, J. S., Charlotte
Alexander, Annie L., Charlotte
Alexander, James Ramsey, Charlotte
Ashe, John Rainey, Charlotte
Austin, Frederick DaCosta, Charlotte
Austin, James Aaron, Charlotte
Blackman, E. E., Charlotte
Craven, Walter Pharr, Charlotte
Craven, Wm. W., Huntersville
DeArmon, John McCamic, Charlotte
Faison, Yates Wellington, Charlotte
Groves, Walter H. (col.), Charlotte
Guion, C. Myers, Charlotte
Hackett, Lester Emlen, Charlotte
Henderson, S. M., Charlotte
Herron, A. M., Charlotte
Houser, Oscar J., Charlotte
Hudson, Charles Curtis, Charlotte
Hunter, L. W., Charlotte, R. 1
Johnson, Richard Hall, Charlotte
Johnston, J. G., Charlotte
Justice, Zoro K., Davidson
Lafferty, R. H., Charlotte
Linney, R. Z., Charlotte
Lubchenko, Nicholas E., Charlotte
McCoy, Edwin M., Huntersville
McLaughlin, Calvin S., Charlotte
Martin, Richard E., Charlotte
Mills, C. H. C., Charlotte
Misenheimer, C. A., Charlotte
Moore, Oren, Charlotte
Myers, John Q., Charlotte
Nalle, Brodie C., Charlotte
Nisbet, Walter Olin, Charlotte
Patterson, Reid, Charlotte
Parsons, William H., Charlotte
Peeler, Clarence N., Charlotte
Pethel, James A., Charlotte
Petrie, Robert William, Charlotte
Petteway, George H., Charlotte
Pharr, William Watson, Charlotte
Query, Richard Zimri, Charlotte
Ranson, J. Lester, Charlotte
Register, E. C., Charlotte
Reid, T. N., Matthews
Ross, Otho Bescent, Charlotte
Sadelson, George H., Charlotte
Simmons, John O., Huntersville
Strong, W. M., Charlotte
Tyson, Edwin F. (col.), Charlotte
Walker, Charles E., Charlotte
Walker, L. D., Charlotte
Wakefield, H. A., Charlotte
Whisnant, A. M., Charlotte
Whitley, Ayer, Matthews
Williams, J. T. (col.), Charlotte
Wingate, Geo. C., Charlotte
Withers, George Lee, Davidson
Withers, J. J., Davidson
Witherspoon, Bartlett J., Charlotte
Young, James Wesley, Charlotte

Mitchell County:

Bradshaw, Isaac W., Relief
Butt, Virgie R., Bakersville
Peterson, Charles A., Spruce Pine
Peterson, James M., Spruce Pine

Montgomery County:

Andrews, Vernon L., Mt. Gilead
Hoyle, H. B., Biscoe
Shamburger, John B., Star

Moore County:
Achorn, John Warren, Pinebluff
Blair, A. McNiell, Southern Pines
Blake, J. F., Carthage
Blue, Alex McN. Carthage
Bowman, Hugh E., Aberdeen
Davis, J. F., Glendon
McLeod, A. H., Aberdeen
McLeod, Gilbert, Carthage
Matthews, J. H., Vass
Matthews, M. L., Cameron
Shields, H. B., Carthage
Stockton, W. I., High Falls
Street, M. Eugene, Glendon
Sweet, W. P., Southern Pines

Nash County:
Battle, I. P., Rocky Mount
Boice, E. S., Rocky Mount
Brantley, C. H., Bailey
Brantley, Hassell, Spring Hope
Braswell, J. C., Whitakers
Braswell, M. R., Rocky Mount
Bullock, G. W. (col.), Rocky Mount
Coppedge, Thomas O., Nashville
Edwards, William, Spring Hope
Fountain, J. A. (col.), Rocky Mount
Hood, J. J. (col.), Rocky Mount
Kornegay, L. W., Rocky Mount
Lane, John L., Rocky Mount
Lewis, Sigma Van, Middlesex
Martin, John Henry, Battleboro
Matthews, Thomas A., Castalia
Phillips, J. B., Jr., Middlesex
Quillen, E. B., Rocky Mount
Staley, S. W., Rocky Mount
Wheless, John R., Spring Hope
Whitehead, J. P., Rocky Mount

New Hanover County:
Alston, J. H. (col.), Wilmington
Avant, F. W. (col.), Wilmington
Bellamy, R. H., Wilmington
Bowen, McDuffie, Wilmington
Chestnutt, D. W. (col.), Wilmington
Cranmer, John B., Wilmington
Croom, Arthur Bascom, Wilmington
Dickie, H. G., Wilmington
Galloway, W. C., Wilmington
Graham, Benjamin R., Wilmington
Green, Thomas M., Wilmington
Honnet, Joseph Harry, Wilmington
Jewett, Robert D., Wilmington
Koonce, Simon Everett, Wilmington
Low, C. E., Wilmington
Lucas, Jonathan E., Wilmington
Mebane, William C., Wilmington
Miller, John Floyd, Wilmington
Moore, William H., Wilmington
Parris, Hubert Astley, Wilmington
Sidbury, James Buren, Wilmington
Slocum, Robert B., Wilmington
Storm, W. E., Wilmington
Stovall, F. A., Wilmington
Tankersley, James W., Wilmington
Thomas, George G., Wilmington
Wessell, John C., Wilmington
Willingham, B. J., Wilmington

Northampton County:
Bolton, Mahlon, Rich Square
Boone, Sam B., Jackson
Brittle, P. C., Conway
Cooke, Q. H., Woodland
Joyner, T. O., Severn
Lassiter, Edgar W., Rich Square
Lewis, H. W., Jackson
Lister, J. L., Jackson
McDaniel, Lawrence E., Lasker
Parker, C. G., Woodland
Stephenson, M. R., Seaboard

Onslow County:
Blount, F. H., Swansboro
Cox, Ernest Lee, Jacksonville
Sutton, Carl White, Richlands

Orange County:
Hemphill, Clyde Hoke, Chapel Hill
Hughes, Claude M., Cedar Grove
Jones, C. D., Hillsboro
Lawson, Robert B., Chapel Hill
Lloyd, B. B., Carrboro
Mangum, Charles Stapler, Chapel Hill

Pamlico County:
Attmore, George S., Stonewall
Purdy, James Jarratt, Oriental

Pasquotank County:
Aydlett, H. T., Elizabeth City
Cardwell, George W. (col.), Elizabeth City
Fearing, Isaiah, Elizabeth City
Griggs, J. B., Elizabeth City
Hoffler, E. L. (col.), Elizabeth City

Sawyer, Chas. W., Elizabeth City
Walker, Herbert D., Elizabeth City

Pender County:

Baldwin, Oscar Brent, Burgaw
Humphrey, David A., Burgaw
Taylor, William Ivey, Burgaw
Williams, Robert J., Rocky Point

Perquimans County

Hoggard, Wm. A., Woodville
Newby, George Edgar, Hertford

Person County:

Baynes, Ralph S., Hurdle Mills
Bradsher, Wm. A., Roxboro
Gentry, George W., Timberlake
Love, Bedford E., Roxboro
Merritt, J. H., Woodsdale
Nichols, A. F., Woodsdale
Nichols, C. G., Woodsdale
Teague, R. J., Woodsdale

Pitt County:

Basnight, T. G., Stokes
Battle, Jas. A. (col.), Greenville
Beasley, Edward Bruce, Fountain
Brown, Zeno, Greenville
Capehart, W. M. (col.), Greenville
Cox, B. Thaddeus, Winterville
Dawson, Walter, Grifton
Dixon, Joseph, Greenville
Dixon, Wm. Henry, Ayden
Frizzelle, Mark Twain, Ayden
Fryer, Claude Percival, Greenville
Hassell, Starke, Greenville
Hemmingway, Joseph D., Bethel
Jones, Claude M., Grimesland
Joyner, C. C., Farmville
Morrill, Jenness, Falkland
Morrill, D. S., Farmville
Nobles, Joseph Everett, Greenville
Skinner, Louis Cotton, Greenville
Smith, Joseph, Greenville

Polk County:

Edelman, Louis, Saluda
Edwards, Henry H., Columbus

Randolph County:

Asbury, F. E., Asheboro
Caveness, Robert Lee, Coleridge
Craven, Franklin Clyde, Ramseur
Fox, Dennis L., Randleman
Fox, Thomas I., Franklinville
Hayworth, C. A., Enterprise
McCuiston, A. M., Trinity
Phillips, C. H., Fullers
Redding, Alex. H., Cedar Falls
Tate, Chas. S., Ramseur
Wilkerson, Charles E., Randleman

Richmond County:

Cadell, G. C., Hoffman
Coppedge, L. J., Rockingham
Coppedge, N. P., Ellerbe
Everett, Avery C., Rockingham
Fowlkes, John Isham, Hamlet
Garrett, F. J., Rockingham
Howell, William L., Ellerbe
James, William Daniel, Hamlet
Kinsman, H. F., Hamlet
Ledbetter, Jas. McQ., Rockingham
McIntosh, W. R., Rockingham
McPhail, Lorenzo Dow, Rockingham
Maness, J. M., Ellerbe
Quick, F. D. (col.), Rockingham
Steel, W. H., Rockingham
Terry, W. C., Hamlet
Webb, W. P. S., Rockingham

Robeson County:

Andrews, N. H., Rowland
Bowman, E. L., McDonalds
Brown, J. P., Fairmont
Carmichael, Thaddeus W., Rowland
Costner, T. F., Lumberton
Currie, D. S., Parkton
Evans, W. E., Rowland
Exum, W. P., Maxton
Harris, D. W., Maxton
Hodgin, H. H., Red Springs
Johnson, T. C., Lumberton
Knox, John, Lumberton
Locklear, G. W., Pembroke
McClelland, J. O., Maxton
McMillan, B. F., Red Springs
McMillan, J. L., Red Springs
McPhaul, Wilbur A., Lumberton
Martin, Jas. A., Lumberton
Norment, Thomas A., Lumberton
Pope, Henry T., Lumberton
Reedy, Howard, Rowland
Ricks, Leonard E., Fairmont
Rozier, R. G., Lumberton
Smith, J. McN., Rowland
Stamps, Thomas, Lumber Bridge
Thompson, N. A., Lumberton

Rockingham County:
Boaz, T. A., Stoneville
Dillard, Geo. P., Draper
Flack, R. E., Spray
Harrison, Henry Hill, Mayodan
Jett, Samuel G., Reidsville
Johnson, William A., Reidsville
McBryde, Malcom Hugh, Reidsville
McGehee, J. W., Reidsville
Martin, Sydnor L., Leaksville
Matheson, Robert C., Madison
Ray, J. B., Leaksville
Taylor, J. T., Madison
Thacker, J. H., Reidsville
Tuttle, A. F., Spray
Webb, S. E., Draper
Wharton, C. R., Ruffin
Wilson, W. P., Madison

Rowan County:
Boger, Daniel Thompson, Rockwell
Boyden, William C., China Grove
Brawley, Mason H., Salisbury
Brawley, R. V., Salisbury
Brown, George A., Mt. Ulla
Burns, Arthur B., Cleveland
Coleman, William A., Salisbury
Councill, Jefferson B., Salisbury
Currie, Edward W., Salisbury
Daniels, Frank Leonard, Salisbury
Edwards, Berte O., Landis
Heilig, Herman Gilbert, Salisbury
Holshouser, Allen R., Rockwell
McKenzie, W. W., Salisbury
Monk, H. L., Spencer
Moore, Edward (col.), Salisbury
Newman, H. H., Salisbury
Peeler, J. H., Salisbury
Price, Wm. Dodge (col.), Salisbury
Ramsauer, Geo. A., China Grove
Shafer, Irvin Everett, Salisbury
Slate, W. C., Salisbury
Stokes, J. E., Salisbury
Summerell, E. M., China Grove
Trantham, H. T., Salisbury
Warren, A. J., Salisbury
West, Robert Marshall, Salisbury
Woodson, Charles, Salisbury
Wright, J. T., Salisbury
Wright, S. P. (col.), Salisbury
Van Poole, C. M., Salisbury

Rutherford County:
Andrews, Robert Mallett, Bostic
Biggs, M. H., Rutherfordton
Bostic, William Chivous, Forest City
Buchanan, Charles Lee, Union Mills
Gold, Charles Fortune, Ellenboro
Goode, T. V., Rutherford College
Hicks, Romeo, Henrietta
Reid, George P., Forest City
Rucker, Adin Adam, Uree
Schenck, D. R., Rutherfordton
Shull, Joseph Rush, Cliffside
Thompson, James B., Bostic
Thompson, W. A., Rutherfordton
Twitty, John C., Rutherfordton
Williams, L. L., Rutherfordton
Wiseman, Charles B., Henrietta

Sampson County:
Bullock, T. C., Autryville
Cromartie, R. S., Garland
Crumpler, Paul, Clinton
Hollingsworth, E. T., Clinton
Lee, A. M., Clinton
Matthews, Joseph Oscar, Ingold
Parker, James Robinson, Clinton
Sikes, Gibson L., Salemburg
Spencer, Frederick B., Salemburg
Underwood, Oscar Ernest, Roseboro
Wilson, Robert Bruce, Newton Grove

Scotland County:
Erwin, E. A., Laurinburg
Falls, B. F., Laurinburg
Gibson, John S., Gibson
Jackson, N. E. (col.), Laurinburg
John, Peter, Laurinburg
McLean, Allen, Wagram
McLean, Peter, Laurinburg
Pate, J. G., Gibson
Prince, D. M., Laurinburg
Shaw, W. G., Wagram

Stanly County:
Allen, J. A., New London
Campbell, J. I., Norwood
Hall, Julius Clegg, Albemarle
Hartsell, Flavius E., Oakboro
Hill, William Isaac, Albemarle
Lentz, Clarence M., Albemarle
Youmans, W. F., Electric

Stokes County:
Bynum, W. H., Germantown
Fulp, E., Fulp
Hanes, John L., Pine Hall
Helsabeck, R. S., Capella
Hill, L. H., Germantown
Hutchinson, C. R., Walnut Cove
Jones, Abram G., Walnut Cove
McCanless, W. L., Danbury
McCanless, W. V., Danbury
Moir, S. A., Francisco
Moore, W. B., Smith
Neal, J. W., Meadows
Phillips, M. D., Dalton
Shreve, J. R., Jr., Germantown
Tillattson, Squire F., King
Tuttle, Reuben Gust, Walnut Cove

Surry County:
Ashby, Thomas B., Mount Airy
Flippin, Samuel T., Siloam
Garvey, Robert Robey, State Road
Martin, Moir Saunders, Mount Airy
Reece, James Montgomery, Elkin
Ring, J. W., Elkin
Stone, Wesley Monroe, Dobson
Wellborn, William Revere, Elkin
Woltz, John Lewis, Mount Airy

Swain County:
Bennett, Percival R., Bryson City
Bryson, D. R., Bryson City
Bryson, Edmond J., Smokemont
Clark, William H., Dorsey
Cooper, Joel A., Almond
DeHart, James, Bryson City
Holt, Russell D., Cherokee
Reeves, Jerome Lyda, Whittier
Storie, J. G., Proctor
Teague, James Henry, Whittier

Transylvania County:
Wallis, William Joseph, Brevard

Tyrrell County:
Flowers, Clarence, Columbia

Union County:
Armfield, Romulus, Marshville
Blair, Mott Parks, Marshville
Craig, Thos. E. (col.), Waxhaw
Ezzell, Sam Howard, Waxhaw
Fitzgerald, Jesse F., Indian Trail
Garren, R. H., Monroe
Jerome, J. R., Wingate
Love, William M., Unionville
McCain, William Robert, Waxhaw
Nance, Geo. B., Monroe
Neal, John W., Monroe
Smith, George Marion, Monroe
Stevens, S. A., Monroe
Whitley, A. D. N., Unionville

Vance County:
Allen, Benjamin G., Henderson
Bass, Harris Hartwell, Henderson
Baxter, John Earl, Henderson
Chapin, William B., Townsville
Cheatham, Goode, Henderson
Furman, W. H., Henderson
Gill, Robert Jones, Henderson
Henderson, Thomas B., Henderson
Perkins, Frank Elliott, Henderson
Upchurch, Robert T., Henderson

Wake County:
Adams, R. K., Raleigh
Aiken, G. A., Wake Forest
Anderson, Albert, Raleigh
Battle, Kemp Plummer, Jr., Raleigh
Barbee, George S., Zebulon
Buchanan, Luther T., Wake Forest
Bonner, Henry M., Raleigh
Buffalo, J. S., Garner
Capehart, L. B. (col.), Raleigh
Carroll, E. D. D., Raleigh
Caviness, Z. M., Raleigh
Cheek, Charles E., Fuquay Springs
Cooper, Geo. M., Raleigh
Crouch, Auley McRae, Raleigh
Freeman, R. H., Raleigh
Gaylord, Lyman Windley, Raleigh
Glascock, Harold W., Raleigh
Goodwin, Andrew Watson, Raleigh
Gordon, J. R., Raleigh
Greenwood, Adolphus B., Raleigh
Harper, James Madison, Zebulon
Haywood, Hubert B., Raleigh
Haywood, H. B., Jr., Raleigh
Hester, Joseph R., Knightdale
Horton, Miles Christopher, Raleigh
Horton, William Calvin, Raleigh
Jenkins, C. L., Raleigh
Jones, Edward Hannibal, Raleigh
Jordan, Thomas Murphy, Raleigh
Lewis, Richard Henry, Raleigh
Lowery, John Robert, Raleigh

McCauley, Lewyn E. (col.), Raleigh
McDowell, Francis Cicero, Zebulon
McGee, James William, Raleigh
Marshburn, Berry Daniel, Wendell
Mashburn, Henry Horton, Raleigh
Penny, John Alexander, Neuse
Perry, Arge Hillard, Wendell
Plummer, J. O. (col.), Raleigh
Powers, J. B., Wake Forest
Ray, Otis L., Raleigh
Reid, Thomas Neely, Matthews
Riggsbee, A. E., Morrisville
Riddick, Ivey Goodman, Raleigh
Roberts, P. F. (col.), Raleigh
Rogers, James Rufus, Raleigh
Root, A. S., Raleigh
Royster, Wisconsin Illinois, Raleigh
Sanderford, John F., Raleigh
Shore, Clarence Albert, Raleigh
Sorrell, Lewis Patrick, Raleigh
Stancell, William Wiley, Raleigh
Thompson, Sanford Webb, Neuse
Tucker, Adam Reynold, Raleigh
Upchurch, Caley G., Apex
Washburn, Benjamin Earl, Raleigh
Watson, John Blois, Raleigh
Wilkerson, Charles B., Apex
Williams, Peter H. (col.), Raleigh
Wortham, Jno. Thos. (col.), Raleigh
Wright, John Bryan, Raleigh
Young, L. B., Raleigh

Warren County:
Haywood, Thos. W., Warrenton
Holt, Thos. J., Wise
Macon, G. H., Warrenton
Morton, N. D., Norlina
Packard, F. S., Norlina
Peete, Charles Henry, Warrenton
Perry, M. P., Macon

Washington County:
Disosway, Alpheus Wood, Plymouth
Hardison, W. H., Creswell
Hassell, J. L., Creswell
Mitchell, Lawrence S., Plymouth
Speight, John Wesley, Roper

Watauga County:
Bingham, E. F., Amantha
Bingham, Goldston D., Sugar Grove
Bingham, R. K., Boone
Bingham, William O., Sugar Grove
Hardin, R. H., Shulls Mills
Jones, John W., Boone
Little, Hannibal McD., Boone
McMillan, John Monroe, Leander
Perry, H. B., Valle Crucis

Wayne County:
Benton, Geo. R., Fremont
Bizzell, Thomas M., Goldsboro
Carter, W. P. (col.), Goldsboro
Crawford, W. B., Goldsboro
Daniels, O. C., Goldsboro
Dillard, C., Jr. (col.), Goldsboro
Faison, W. W., Goldsboro
Foard, Fred T., Goldsboro
Fort, J. E. (col.), Goldsboro
Ginn, T. LaFayette, Goldsboro
Gordon, E. T., Goldsboro
Hays, L. O., Fremont
Henderson, Clair Crouse, Mt. Olive
Irwin, Henderson, Eureka
Ivey, Henry B., Goldsboro
Jones, Clara E., Goldsboro
Lassiter, C. L., Fremont
Linville, W. C., Goldsboro
Patrick, Jas. E., Seven Springs
Person, E. C., Pikeville
Person, Joseph Edgar, Pikeville
Smith, Roger Allen, Goldsboro
Smith, Wm. H., Goldsboro
Spicer, Wm., Goldsboro
Steele, W. C., Mt. Olive
Sutton, W. G., Seven Springs
Tatum, M. McI., Mt. Olive
Whelpley, Frank L., Goldsboro

Wilkes County:
Duncan, J. E., North Wilkesboro
Eller, A. J., Ready Branch
Horton, W. P., North Wilkesboro
Hunter, J. McKnight, Reddies River
Sink, C. S., North Wilkesboro
Somers, Lee Preston, New Castle
Turner, Jas. M., North Wilkesboro
White, J. W., Wilkesboro

Wilson County:
Anderson, W. H., Wilson
Anderson, Wm. S., Wilson
Best, Henry Blount, Wilson
Crocker, Samuel H., Stantonsburg

Dickinson, Elijah D., Wilson
Gillam, M. S. (col.), Wilson
Grady, Leland Vain, Wilson
Hargrave, Frank S.(col.), Wilson
Harrison, John Sidney, Elm City
Herring, B. S., Wilson
Lamm, Isaac Wilson, Lucama
Mitchner, W. A. (col.), Wilson
Moore, K. C., Wilson
Person, Thomas E., Stantonsburg
Putney, Robert H., Elm City
Smith, G. A., Black Creek
Smith, Lawrence Jackson, Wilson
Strickland, Ernest L., Wilson
Williams, Albert Franklin, Wilson
Wilson, Thomas Hooper, Lucama

Yadkin County:

Bryant, Charles G., Yadkinville
Couch, Vanderbilt F., Yadkinville
Hardin, Thomas R., Yadkinville
Hardin, S. A., Yadkinville, R. F. D. 1
Jennings, Royal G., East Bend
Leak, W. G., East Bend
Salmons, Henry Clay, Jonesville

Yancey County:

Gibbs, J. B., Burnsville
Morgan, Cassius H., Higgins
Ray, John Landon, Burnsville

CONJOINT SESSION OF THE STATE MEDICAL SOCIETY AND THE STATE BOARD OF HEALTH

Called to order by Maj. J. Howell Way, M. D., President of the State Board of Health.

ANNUAL REPORT OF THE NORTH CAROLINA STATE BOARD OF HEALTH

W. S. Rankin, M.D., Secretary

Introduction: The State of North Carolina, assuming that its medical profession is naturally and deeply interested in what it is doing and proposing to do for the health of its people, has by legal enactment required that a report of the work of the State Board of Health be submitted to you at your annual meetings for your consideration and suggestions.

Scope of report: Inasmuch as the Seventeenth Biennial Report of the State Board of Health, which has only recently been received from the printer, covers fully and in detail the activities of the board to January 1, 1919, this report will be limited to two general subjects, namely, first: the State's and the profession's losses in the recent and unprecedented epidemic of influenza; and, second: the public health legislation of the General Assembly of 1919.

The influenza epidemic: Between October 1, 1918, and March 1, 1919, the State of North Carolina lost 13,703 of its citizens from influenza. These deaths, distributed by months, were as follows: October, 6,561; November, 2,083; December, 1,920; January, 2,266; February, 873. Assuming that the fatality from the disease was around one and one-half per cent, the State has had within the five months period mentioned about 1,000,000 cases of influenza.

The rapidity of the onset and development of the epidemic, together with the absence of a considerable percentage of the medical profession that were engaged in military service, created an administrative problem, local and state and national, of great difficulty. The difficulties of the problem were increased owing to the highly contagious nature of the disease, and its striking down during the first week or two weeks of its prevalence many of the overworked doctors and nurses who remained for civilian service. Perhaps no community in North Carolina, and certainly no state in the Union, received anything like adequate medical or nursing care.

In the beginning of the epidemic the American Red Cross and the United States Public Health Service organized for the purpose of creat-

ing a reserve supply of doctors and nurses and of distributing the reserve through state boards of health to stricken communities. The Public Health Service and the American Red Cross felt in the beginning of the epidemic that in this way all calls could be met. In less than a week both of these great agencies, swamped with appeals from all parts of the country for doctors and nurses, threw up their hands in despair and admitted their inability to supply the urgent appeals for help. The North Carolina State Board of Health, through the assistance of the Public Health Service and the American Red Cross and through the volunteering of North Carolina doctors and nurses, was able to supply sixty-four communities with seventy emergency doctors and sixty-one emergency nurses. The following thirty-five members of our State profession, at a sacrifice of ease, convenience, and remuneration, accepted service under the direction of the State Board of Health during the epidemic for detail to those communities where they were most needed:

Allyn, H. S. ..... Greensboro
Anthony, J. E. ..... Kings Mountain
Aydlette ..... Greensboro
Beall, W. P. ..... Greensboro
Bethune, A. C. ..... Winston-Salem
Bryson, D. R. ..... Bryson City
Bullock, W. B. ..... Oxford
Burnette ..... Wilmington
Cathell, J. E. ..... Linwood
Cordice, J. W. V. ..... Greensboro
Ellis, R. C. ..... Shelby
Duncan, J. E. ..... North Wilkesboro
Evans, W. E. ..... Rowland
Flippen, J. N. ..... Winston-Salem
Gamble, J. R. ..... Lincolnton
Garren, R. H. ..... Monroe
Harper, Wm. ..... Albemarle
Herring, W. C. ..... Charlotte
Hyatt, A. L. ..... Kinston
Jonas, J. F. ..... Marion
Jones, J. W. ..... Boone
Lubchenko, N. O. ..... Charlotte
McClellan, J. A. ..... Maxton
Moseley, C. W. ..... Greensboro
Nelson, R. J. ..... Robersonville
Oates, Geo. ..... Grover
Parris, H. A. ..... Wilmington
Roberson, M. ..... Durham
Smith, B. B. ..... Bridgeton
Stamey, E. L. ..... Greensboro
Swann, E. L. ..... Semora

Tyson, T. D. . . . . Pleasant Garden
Walker, L. J. . . . . Charlotte
Wilson, A. R. . . . . Greensboro
Wolff, D. R. . . . . Greensboro

This is a small group of volunteers, but a most creditable number when it is remembered that the epidemic rapidly involved the entire State so that comparatively few physicians could leave their own stricken communities for service in others. In combating the epidemic, all of the physicians of the State were overworked, their vitality dangerously drawn upon, and probably more than half of the profession contracted the disease. Of those contracting the disease, sixteen died. The following is a list of the physicians whose deaths from influenza or its complications have been officially recorded with the State:

Alston, Jr., Willis . . . . . Warren County
Andrews, V. L. . . . . Montgomery County
Cox, B. W. . . . . Wayne County
Exum, Wyatt P. . . . . Robeson County
Harrison, J. S. . . . . Nash County
Hester, John Rogers . . . . . Wake County
Jones, Edward Warren . . . . . Beaufort County
Lassiter, Edgar W. . . . . Northampton County
Matthews, John Herbert . . . . . Moore County
Matthews, Joseph Martin . . . . . Moore County
Perry, D. H. . . . . Wake County
Stovall, Arnold . . . . . New Hanover County
Sutton, Julian Rush . . . . . Buncombe County
Terrell, Albert Johnson . . . . . Buncombe County
Willingham, Benj. J. . . . . New Hanover County
Wilson, T. H. . . . . Wilson County

These men, back in their early years, in the instinctive germs of their characters, were inspired by a lofty altruism that had its roots entangled with the *chordæ tendineæ* of the heart of the suffering world. Such a beginning and such an initial course they followed as is pictured in Wordsworth's "Ode on Intimations of Immortality":

"Heaven lies about us in our infancy.
Shades of the prison-house begin to close
Upon the growing Boy,
But he beholds the light, and whence it flows,
He sees it in his joy;
The Youth, who daily farther from the east
Must travel, still is Nature's priest,
And by the vision splendid
Is on his way attended;
At length the Man perceives it die away,
And fade into the light of common day."

Characters that are fundamentally right, though they may have their vestures soiled and disarranged and worn and rent in the turmoil of daily struggle, under a stern test, in a great crisis, emerge ultimately triumphant.

Crises cause a reversion to type. In crises the little personal effects and the superficial things are cast aside as the soldier lays aside unnecessary accoutrements when the fight is on—the real man, the man as he was in the beginning and is in his deeper being, comes to the surface. In crises the light of common day yields again to the "vision splendid" of the early days, and the little fears and animosities of ordinary times go into eclipse. In crises men go back to first principles and to the God of their youthful dreams and aspirations.

So it was last winter with these sixteen whose names I have called. Then let this be our remembrance of them as they appeared in the last act: with all the splotches of this worldly game, with all the grime, and grease, and dust of their humanity washed away in noble sacrifice, their diviner natures unobscured, their feet firmly set on the old road of their early choosing, passing out of mortal sight over the westward hills, through the hazy horizon of mortality, and into the country beyond the sunset.

The recent public health legislation. The General Assembly of 1919 was more appreciative of the importance of conserving and promoting public health and more generous in providing for the work of the State Board of Health than any legislative body which the State has ever had. There were two institutions in the State that were given all of the appropriations for which they asked: one, the University of North Carolina, and the other, the North Carolina State Board of Health. And not only did the General Assembly give the State Board of Health all of the funds for which it is asked, but it also enacted all of the legislation which the Board recommended. The burden is upon us now to justify, fully, this confidence and generosity.

The leaders who took a prominent part in the support of the health legislation were, first: the Governor of North Carolina, Hon. T. W. Bickett; next should be mentioned the Lieutenant-Governor, Hon. O. Max Gardner, and Hon. D. G. Brummitt, Speaker of the House. These two legislative leaders were deeply interested in the enactment of constructive health laws and expressed this interest through their appointment of able and interested members of their respective bodies on the two public health committees. Senator Jos. A. Brown of Columbus County and Hon. Stanley Winborne of Hertford County were appointed chairmen of the two committees on public health. Other legislative leaders who gave most valuable support to the health legislation were

Senator Geo. A. Holderness and Hon. R. S. McCoin, the chairmen of the two appropriation committees, and Senators F. C. Harding, Dorman Thompson, H. E. Stacy, D. Z. Newton and A. M. Scales, and Honorables W. N. Everett, O. M. Mull, T. J. Gold, C. G. Wright, Geo. K. Grantham, H. P. Greer, and D. B. Teague. The State of North Carolina owes to these gentlemen and their colleagues—for most of the health legislation was passed unanimously—a debt larger than it now realizes. So much in general, and now a brief reference to the more important acts:

The sanitary privy law is without a doubt the most comprehensive, the most effective, and altogether the best piece of State legislation directed against fecal-borne diseases that exists in the United States. I speak deliberately. This act requires, under adequate and just penalties:

(1) That all privies, except those of farmers and their tenants, that are within three hundred yards of another home shall be (a) constructed and (b) maintained in a sanitary manner according to rules and regulations to be prescribed by the North Carolina State Board of Health.

(2) That the owner of every such privy shall pay an annual inspection tax of forty cents to the treasurer of the North Carolina State Board of Health.

This act provides:

(1) Through an inspection tax of forty cents on every privy coming within the meaning of the act, a fund of from $30,000 to $32,000 a year.

(2) With this fund the following machinery for the enforcement of the law; a sanitary engineer as chief of the bureau of inspection and engineering; a chief sanitary inspector; the necessary stenographic and clerical assistance; ten or twelve intelligent, capable State sanitary inspectors mounted on motorcycles for enforcing the law in the ten or twelve sanitary districts into which, for administrative purposes, the State will be divided.

(3) A system of licenses which will be posted in visible form on the privies coming within the meaning of the act and removed from privies failing to be properly maintained, with the substitution of red signs, reading "Insanitary; unlawful to use." The white license sign and the red danger sign will be of such size as to be visible from the back porch of the houses in the neighborhood of the privy. The inspectors will inspect, license and collect the inspection fee for privies within the last three months of each year, and in addition will inspect each privy, on an average, from

five to six times during the year, to see that it is being maintained as prescribed by the rules and regulations of the State Board of Health.

(4) Through the force of State sanitary inspectors the Board of Health will have a field arm or force which can adequately enforce all of the State public health laws, and can inspect the hotels, jails, convict camps and State institutions, as now required by law.

The medical inspection of schools law is, in the opinion of the medical inspection of schools expert of the United States Public Health Service, Dr. Taliaferro Clark, the best State law of its kind in the United States. Something of the importance of the law may be gained from the fact that it will be carried out on an annual budget of $85,000. This act requires, under adequate and just penalties:

(1) That the State Board of Health shall provide, supervise, and direct the medical inspection and treatment of the public school children of one-third of the counties of the State each year.

(2) That the public school teachers on the receipt of a blank form with proper instructions for filling out the blank form shall record thereon such facts relative to the child's physical condition as required by the State Board of Health. This form, with the corresponding instructions, has been carefully prepared by Dr. Geo. M. Cooper, with the assistance of Dr. Taliaferro Clark of the United States Public Health Service. The teacher is required to return the forms to the State Board of Health, properly filled out for each child, within sixty days of their receipt.

This act provides:

(1) A fund of $50,000 with which will be employed seven full-time, specially trained public school nurses, and eight full-time dentists. Each nurse and each dentist will be provided with an automobile and with such equipment and material as is necessary for their work.

(2) That, on the receipt of the cards from the teachers of the county showing the physical condition of the school children, the cards be classified in the Bureau of Medical Inspection of Schools at Raleigh, and that one of the public health nurses be sent to the county to see those children who, from their record cards, are most in need of a follow-up examination, and advise with their parents as to the condition of the children, and the importance of having them treated. The public health nurse will spend an average of ten weeks in each county; the parents are

required to bring the children to the public health nurse not to exceed a distance of ten miles, but the nurse will probably have the time and means to visit each school, and where for some good reasons parents or children are not at school, to visit the individual home.

(3) That a dentist from the State Board of Health, with full traveling equipment, be sent to the county to go into each school and give the children who are between the ages of six and twelve such dental care as is needed.

(4) That the counties embraced in the field of medical inspection each year (that is, one-third of the counties of the State) shall appropriate and pay to the State Board of Health a sum not exceeding $10 per one hundred children enrolled in the schools. For the average county this will amount to $800, but as the county pays this amount only every third year, it amounts really to an annual county appropriation of only $266.66. With the $800 appropriated by the county, provision will be made for the treatment of the children of the county who are found to have defective eyes, and adenoids and tonsils that need removal.

(5) In general, and in sum, the act provides (a) for the dental treatment without cost to parents or children, of twenty-five thousand children a year, and (b) for the treatment of six thousand other children for defective eyes, ears and throats. As a result of this work, its educational influence, there will be, in all probability, at least as many more children treated for the common defects of childhood by private agencies.

Laws for the control of venereal diseases: There are four of these laws. They were originally prepared by the Interdepartmental Social Hygiene Board, composed of three cabinet officers, Hon. Josephus Daniels, Secretary of the Navy; Hon. Newton D. Baker, Secretary of War, and Hon. Carter Glass, Secretary of the Treasury, and the three Surgeons General of the Navy, Army, and Public Health Service, Generals Braisted, Ireland, and Blue. This board, in the preparation of these laws, utilized the combined experience in repressing prostitution and preventing venereal infections of the Training Camps Activities Commission, the Navy, the Army, and the Public Health Service. Two of the four laws are directed at the repression of prostitution, which bears the same relation to the venereal diseases that stagnant water does to malaria. The other two laws are directed at finding the carriers of the venereal disease infection, the cases of the disease, seeing that they are properly treated and thereby rendered noninfectious. So much in

general, and now a few words in regard to the requirements and provisions of each one of the four acts:

The law for abating immoral nuisances provides that a lot or building which is used occasionally or regularly for prostitution or assignation is a nuisance and may be abated in an easy, economical, and expeditious manner which is prescribed in the act. In the abatement, the furnishings of the house are to be sold at public auction and the funds received at the sale applied to the cost of prosecuting the nuisance. The property then cannot be used for any purpose for a period of one year.

The law for the repression of prostitution provides:

(1) That it shall be unlawful for any person to aid or abet *"by any means whatsoever"* in any act of prostitution or assignation. At least fifty-seven varieties of aiding and abetting are clearly defined and forbidden in the act, and then the section describing forms of aiding and abetting concludes with the sweeping, general, and all-embracing phrase, *"by any means whatsoever."*

(2) That there shall be two degrees of guilt for aiding and abetting prostitution: a first degree for persons convicted on two indictments within the same year, and a second degree for first offenses or for a single offense within the period of a year.

(3) That the court shall sentence persons convicted in the first degree (two offenses in a single year), to from one to three years imprisonment or commitment to a reformatory. Persons committed to a reformatory may be paroled by the board of directors at any time after their commitment. There is no means provided by which persons sentenced to prison for first degree offenses may be given their freedom in less than one year. Perhaps the Governor could pardon.

(4) That persons convicted of a single offense within one year, guilty in the second degree, may be put on probation under a probation officer.

(5) That in paroling or probating persons infected with venereal diseases, the parole or probation shall be made, I quote, "only on such terms and conditions as shall insure medical treatment therefor and prevent the spread thereof. And the court may order any convicted defendants to be examined for venereal disease."

The law regulating the sale of remedies for venereal diseases: This law deals primarily with the druggists. Grateful acknowledgment is

here made of the valuable coöperation of the druggists' association of the State in the enactment of this law. The law provides:

(1) That druggists may not prescribe for venereal diseases. Only "a regularly licensed physician" is permitted to prescribe.

(2) Druggists may sell to a person a remedy designated by the purchaser used in the treatment of venereal diseases, but in this case the druggists must record and report to the State Board of Health on forms and in a manner to be defined by the State Board of Health the name, address, date, and other particulars as to each sale.

(3) That the druggist shall keep on separate file and subject to inspection by officers of the State Board of Health all prescriptions for venereal diseases or prescriptions containing certain designated remedies which are usually prescribed in the treatment of these diseases.

(4) That indigent persons suffering from venereal diseases may receive intelligent treatment, the law provides that one or more physicians may be appointed in each county to prescribe for the helpless and needy, and that for each prescription to such persons the physician shall be entitled to a fee of fifty cents, half to be paid by the State Board of Health and half by the county.

The law requiring the reporting and treatment of venereal diseases deals largely with the medical profession and provides:

(1) A declaration to the effect that venereal diseases are infectious and dangerous to the public health.

(2) That any physician or other person making a diagnosis of or treating a case of venereal disease shall report the said disease, after a form and manner to be prescribed by the North Carolina State Board of Health, to the said board.

(3) That State health officers, county health officers, and city health officers are empowered to examine persons reasonably suspected of having venereal diseases, and if found infected, to detain, if necessary in quarantine, in a private home or a county jail, and to have such persons treated until no longer infectious and dangerous to the public health.

(4) That in the arrest, detention, and treatment of prostitutes for venereal diseases, the county in which the prostitution was practiced may be charged with and shall pay any expense incurred in detaining and treating the prostitutes. It will be observed that this section, by penalizing counties that permit the practice of pros-

titution, will result in turning the entire sheriffs' and deputy sheriffs' forces of the State actively against prostitution.

Appropriations for the repression of prostitution and the treatment of venereal diseases: The Federal Government and State Government each appropriates $24,000 a year, a total of $48,000, for the repression of prostitution and the control of venereal diseases. This fund will be used in accordance with a general plan of work adopted by the Federal and State health officials. The plan includes (1) the establishment of venereal disease dispensaries in certain places; (2) the development of county agencies for dealing with indigent persons infected with venereal diseases; (3) the furnishing of free salvarsan to dispensaries and to physicians of the State for the treatment of indigent cases; (4) an extensive and well-worked-out educational campaign using the Bulletin, special pamphlets, exhibits, lecturers and films; (5) and the use of an experienced full-time detective for securing evidence against violations of the law, and a full-time attorney for prosecuting violations.

Appropriations: For permanent improvements, an appropriation of $100,000 was made to the State Sanatorium. This will permit the completion of the large central building, and enlarge the capacity of the Sanatorium to about 150 beds.

Annual appropriations for the maintenance of public health work in North Carolina are derived from the following sources:

State:	
(1) Treasury—Laboratory of Hygiene	$ 25,000
State Sanatorium	50,000
General work of board	118,250
(2) State School Fund—Treatment common defects public school children	50,000
Total from State	$ 243,250
Other Sources:	
(1) International Health Board	$ 14,000
(2) U. S. Public Health Service	27,000
(3) Counties—For county health work	36,000
For treating defective eye, ear, nose, and throat conditions public school children	26,000
(4) Fees paid the Laboratory, and inspection taxes on privies	39,000
Total from other sources	$ 142,000
Grand total annual appropriations for public health work, all sources	$ 385,250

Dr. Way: That, I think, if you will allow me to say so, is one of the finest reports this State or any other ever received from its executive Health Officer. I especially want to commend it to you and ask, when it appears in print, a careful reading and study of it, replete, as it is, with valuable data. Dr. Rankin has had, as you all know, an especially strenuous period of work.

I think this ought to go in the Transactions of the Medical Society of North Carolina and the State Board of Health. No one will ever know what a hard time I had to keep Dr. Rankin from going into the army; for his every manly instinct impelled him from the first to tender his services to the nation. I made this point in the first year of the war, that if it took ten million men to do our part in whipping the Hun, North Carolina's part of that ten million would be only 240,000. Was it better for him, as the health man of the State—was it better for him to follow after the 240,000 and leave the homes, the property of all, plus the other nine-tenths of the people who necessarily stayed at home, and last, but not least, the women and children? I insisted that his duty was with the people of North Carolina. I suggested to him that the exigencies of the war would open new avenues of public health work and service, and while we had many splendid men in health work, we did not have, nor have we now, any who could do that work as efficiently and intelligently as Dr. Rankin. A friend of mine with whom I discussed it said he disagreed with me. He said that we might as well let him shut up shop and go, for everything was going into the army. Well, Dr. Rankin argued the matter with me once or twice again. Finally, at the beginning of the next year, he came by the army camp where I was stationed and advised me that he was just sending in his application to the Surgeon General's office for a commission. Well, he had visited me often before that, and he visited me after that time, but that was the only time I did not ask him to stay to dinner. He does not know it, but I got to town before he did, and the Surgeon General decided that he would not commission Dr. Rankin. And it was a glad day for North Carolina in public health work when Dr. Rankin stayed out of the army.

I felt that I wanted you to know these things, and how Dr. Rankin was between two fires all the time. Yet I think later, when he saw the great field of accomplishment that he was covering, I think he must have been glad that he was filling his duty in this sphere of great helpfulness, rather than being in the army. There were plenty of men in the army who could do all that he could do there, but no one could take his place here.

One feature of the report in which I am especially interested is the reference to the work of the doctors who stayed at home and worked during the epidemic. With all due respect to the men who volunteered in the army—who need no encomium at your or my hands, for has not history already written in imperishable letters the record of the more than four hundred North Carolina physicians? Volunteers, too, almost to a man! Doctors, who closing their offices, at present and possible future financial sacrifices, and taking fond adieu of their loved ones, bravely faced the uncertainties of cruel war! I want to say to you that the men and doctors who stayed at home and who did their duty there—and I have yet to hear of any that did not—go right in the same category of manly men who saw their duty and did it during the trying period through which this nation has just passed. Never has my heart thrilled with greater respect and admiration for the men of the medical profession than when I contemplate their record of the past two years, and certainly, in the language of the immortal hero of Santiago, Winfield Scott Schley, "There is glory enough for all"!

Dr. Richard H. Lewis, Raleigh: I would like to add my testimony as to the attitude of Dr. Rankin. He was filled with patriotism and very anxious indeed to volunteer. He did me the honor to talk over the matter with me, and I told him that, in my judgment, he could do infinitely more for his country at his present post than in the army, and that it was his patriotic duty to remain at his present post, in which he has done so much for the uplifting and preservation of the health of our people. I am sure that every member of this Society will agree with me that Dr. Rankin has done more for the people of our State and country than he could possibly have done in the army, and no man I know of could have done more for that cause than he has done these many years.

Dr. Way: There may be some question in regard to features of this report which you would like to ask Dr. Rankin, or some inquiries in regard to the work, and we shall be glad to hear from anyone interested.

Dr. Benjamin K. Hays: It will necessarily be some months before we can get this report in the Transactions, and I would like to ask if we cannot have it in the Bulletin, so that we can get it right away. I offer this as a motion.

Dr. Rankin: The Bulletin space is so crowded now, and paper costs so much, that I would like Dr. Hays to amend the motion, if he does not mind, to have the report printed in distributable form and sent to the doctors of the State.

Dr. Hays' motion, as amended, was seconded and carried.

Dr. Way: I call your attention to the fact that the terms of office of four members of the State Board of Health expire at this meeting. Two of them are gubernatorial appointees, and two are elected by the members of the State Medical Society. The gubernatorial appointees are Drs. R. H. Lewis and E. J. Wood. The Governor has not indicated to the State Board of Health as yet his pleasure in this matter. The matter, I am sure, he will take care of when he desires. The two gentlemen whose terms expire at this meeting and whose places should be filled by this body are Dr. Cyrus Thompson and Dr. F. R. Harris. Nominations are now in order.

Dr. D. E. Sevier nominated as members of the State Board of Health the two retiring members, Dr. Thompson and Dr. Harris.

Dr. D. J. Hill, Lexington: When I was young in years, and young in the profession, we had a State Board of Health. The board of health of today was somewhere in the distance, a vision. The State Board of Health, Mr. President and gentlemen, has always been composed of good, practical, solid, true men. I am convinced that not only the profession but the people throughout the State are beginning now to see a realization of that vision which was seen by the State Board of Health many years ago. We now know that the State Board of Health stands for something, and *that* something is the best for the health of the people of this State. One of our greatest national Presidents, perhaps, that ever sat in the chair, said that it was a bad time to swap horses in the middle of the stream. Gentlemen of the profession, we are now in the midst of a turbulent stream. These two men are known throughout the State. They have been tried, often tried, and never found wanting. It is a great pleasure, and I take it as a great privilege to second the nomination of Dr. Fletcher R. Harris and Dr. Cyrus Thompson.

No other names being offered, the nominations were closed. Dr. Harris and Dr. Thompson were declared elected.

Dr. Thompson (being asked to address the meeting): I want to suggest, Mr. Chairman, that Dr. Harris, being a younger man than I am, should have the opportunity to say his say first. Therefore I will tell Dr. Harris that the water is fine and to come on in and I will follow him.

I appreciate this expression of your confidence, gentlemen, more than I could tell you in mere words. I went on this board six years ago, and I am perfectly willing to continue on the board and give my best service to it in word and in deed, perfectly willing to continue on it if you desire me. If you had desired to displace me and put another man in the position which I have held for six years, I should not have

gotten grouchy or felt aggrieved at all. But you give it to me, and I appreciate it, and appreciate it immensely. If there is one matter that lies on my heart more than any other, it is not that I get on my bended knees and pray for things that I know never can come to pass, it is not that, but to do the things for the human beings about me which, by the providence of God, I can do and am expected to do. The one thing which ought to rest on the heart of every man who calls himself a physician is the good of his fellows, the public health and not the private practice of medicine. That is what is meant by democracy. I find the fundamentals of it in the question of the Master to Simon Peter: "Lovest thou Me?" Every time He demanded as a proof of Peter's love that he "Feed my sheep, feed my lambs." If I ever get to Heaven, I shall get there because of my love for my fellowman. (I may say that I love him so much that I expect to get there.) When I get there perhaps I shall have no desire to leave, but if I do get a little furlough I am not going to France and flounder around there in the mud; I am going to take it at the time of the meeting of the State Medical Society of North Carolina, and come and be with you brethren in the spirit and tell you something about Heaven. Understand, I am not in any great hurry to go to Heaven; I would rather be here yet awhile. But when I do go and get back here on my furlough I shall spend it at this meeting. I tell you one thing, I am not going to any political convention or any revival meeting. I am going to come here because I love you and you love me, and because I am actuated in my life by ideals and have aspirations, and I know that the medical men in North Carolina are idealists and men who aspire to higher things.

I appreciate this honor profoundly, and I love every one of you.

Dr. Harris: I thank you all from the bottom of my heart for this expression of your confidence, and I assure you that I shall do the very best that is in me. I esteem it an honor greater than any other that can be bestowed by this Society, because I feel that there is no place in which I can render any greater service, and I deem it an honor to serve my fellowman.

Dr. Way: Before turning over the gavel, I want to thank you for your presence and for your continued interest in the public health work of North Carolina. Though it has gone beyond you and has become the people's work, there must necessarily remain the duty of the medical profession to lead, guide, and direct wisely substantially all of the public health activities of the State, the county, municipality and separate communities. I wish to repeat that the membership of the State Board of Health is yours to direct, yours to advise, yours to ask, yours

to suggest, and I want to say again that every member of the State Board of Health, every officer, is ready and anxious to receive suggestions and helpful criticism. Give them these, because, again I insist, it is not their board of health, it is yours.

I thank you again for your appreciation and for your presence, and I now declare the Conjoint Session adjourned.

State Board of Medical Examiners, 1914–1920

Left to Right, Standing: Dr. John G. Blount, Washington; Dr. Edwin G. Moore, Elm City; Dr. Hubert A. Royster, Raleigh; Dr. John Q. Myers, Charlotte.

Sitting: Dr. Jacob F. Highsmith, Fayetteville; Dr. Isaac M. Taylor, Morganton; Dr. Martin L. Stevens, Asheville.

REPORT

OF THE

BOARD OF MEDICAL EXAMINERS

OF THE

STATE OF NORTH CAROLINA

ANNUAL SESSION, RALEIGH, N. C., JUNE 24-27, 1919

There were—

101 registered for examination.
23 for first two years.
9 failed to pass examinations.
23 obtained license by reciprocity.
2 limited licenses were granted.

Highest average was made by DeWitt Klutz.....92.4%
The next highest was made by Norwood C. Riddle.....91.85%

H. A. Royster,
Secretary.

Raleigh, N. C.

REQUIREMENTS FOR ADMISSION TO EXAMINATION FOR MEDICAL LICENSE

An applicant for license to practice medicine in North Carolina must appear before the Board of Medical Examiners in regular session and present a certificate of good moral character, attested by two persons known to the Board, a diploma from a medical college in good standing, or a license from some other State, and must deposit fifteen dollars with the Secretary of the Board. He will then be examined upon the following branches of medicine: Anatomy, Physiology, Surgery, Pathology, Hygiene, Chemistry, Pharmacology, Gynecology, Materia Medica, Therapeutics, Obstetrics, Diseases of Children, and the Practice of Medicine. The examinations are written, oral, and practical, combined.

He must make an average of 80 per cent upon all the branches, and he must not fall below 35 per cent upon any one branch.

Applicants must satisfy the Board that they have an academic education equal to the entrance requirements of the University of North Carolina. Only graduates of Class A medical schools (rating of Council on Medical Education of the American Medical Association) are acceptable to this Board.

Applicants who have finished a two-year course, without conditions, in accredited medical schools, may come up for examination on Anatomy (including Histology and Embryology), Physiology (with Pathology and Bacteriology), and Chemistry and Hygiene.

TEMPORARY LICENSE

An applicant for temporary license must appear before two members of the Board of Medical Examiners and present a certificate of good moral character, a diploma from a medical college in good standing, and must pay a fee of five dollars. He must then stand a satisfactory examination.

A temporary license continues in force only until the next regular meeting of the Board, and is granted but once to the same applicant.

Applicants for temporary license may call upon any two members of the Board at their homes at any time in the year, selecting the two most accessible.

REQUIREMENTS FOR RECIPROCITY

1. Reciprocity is granted only to men of known reputation and ability. Unless the applicant has had five years experience in successful practice in the State in which he then resides, or two years of successful hospital experience, or has filled positions of medical trust accounted by the Board as the equal of these, and unless he is a graduate of a high class medical college and possesses a good preliminary education, his application will not be considered. The burden of proof is upon the applicant to show what his attainments are.

2. He must not have failed before the North Carolina Board.

3. He must present himself in person before the North Carolina Board at its regular session. To this rule no exception is ever made. He must then pay a fee of fifty dollars.

4. He must fill out a blank application in regard to his moral character, educational attainments, identity, etc., and file the same with the secretary at least thirty days before the meeting of the Board. (Blank applications may be obtained from the Secretary upon request.)

5. Reciprocity will be granted to physicians who have been admitted by examination to the United States Public Health Service, the United States Navy or Army, and who have been continuously in service or have received honorable discharge, and have been in continuous successful practice to the date of application.

In regard to the matter of reciprocity, the State of North Carolina regards the qualifications of the applicant rather than the State from which he comes In every case it is necessary that the applicant appear in person before the Board of Medical Examiners in regular session, and by this personal interview convince the members of the Board that he is a man of intelligence, sobriety, and high personal character. For this reason, it is impossible to make a definite promise of reciprocity to any man until he has appeared before the Board.

The applicant must also produce papers showing that he has a good preliminary education, is a graduate of a high-grade medical college, and that he has been successful in his medical undertakings since graduation. In addition to the application blank, the applicant must furnish abundant evidence that every statement contained thereon is true; that is, when hospital experience is claimed, it must be accompanied by letters from the proper authorities, showing the time of such service, and certifying that this service was satisfactory. The same requirements are made in regard to other positions of medical trust.

The North Carolina Board reserves the privilege of rejecting any applicant for reciprocity without question or comment on the part of the applicant.

OBSTETRICS, GYNECOLOGY AND PEDIATRICS

DR. E. G. MOORE

1. What is meant by the science and art of obstetrics?
2. Give the boundaries of the true pelvis, mentioning the obstetrical landmarks found therein, and state the diameters of its outlet.
3. Discuss the toxemia of pregnancy and outline its treatment.
4. What types of labor would indicate the employment of: (a) pituitrin, (b) forceps, (c) version, (d) "watchful waiting?"
5. What would be your management and method of treatment of: (a) placenta previa, (b) retained placenta, (c) eclamptic seizures, (d) mastitis?
6. What is subinvolution, its principal causes and its treatment?
7. Mention the chief causes of painful menstruation and suggest the means of relief.
8. State the principal causes of convulsions in childhood and give the treatment for the same.
9. Outline the general treatment of enterocolitis in a child one year old and write one prescription for the same.
10. What is spina bifida and what is its prognosis?

PRACTICE OF MEDICINE

DR. JOHN G. BLOUNT

1. What diseases affect the pleura? Give physical signs; how would you differentiate?
2. Name and describe three varieties of angina.
3. What is the etiological factor in the production of scurvy?
4. Describe two varieties of leukemia.
5. What is the significance of an enlarged spleen? In what diseases do you find it enlarged?
6. What is the significance of occult blood in the stools?
7. Give symptoms of pyloric spasm; etiology; treatment.
8. What area of the brain is most often affected by cerebral hemorrhage?
9. Define delusion, illusion, hallucination.
10. Define briefly the etiology of eczema.

PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS

DR. JOHN Q. MYERS

1. What are fluid extracts? (a) How many grains of the drug would be required to make one thousand c.c. of the fluid extract of aconite?
2. In what official preparation of digitalis do we find the diuretic principle?
3. How much strychnine in ten c.c. of the tincture of nux vomica?
4. Name the official preparations of opium, with dose of each.
5. Give reasons why the use of the tincture of iodine was discouraged as an antiseptic in front line of first aid work.
6. Name the antidote for poisoning by (a) strychnine, (b) opium, (c) phenol, (d) oxalic acid, (e) cocaine, and (f) arsenic.

7. What are the therapeutic uses of alcohol?

8. Give treatment and prognosis of progressive pernicious anemia.

9. Define briefly but clearly (a) serum therapy, (b) antitoxin therapy, (c) prophylaxis.

10. Write a prescription for the following: (a) influenza, (b) acute gastritis, (c) migraine, (d) sciatica, (e) cystitis.

11. Give briefly the treatment for sprue.

12. How can ophthalmia neonatorum be prevented and how treated?

ANATOMY

Dr. J. F. Highsmith

1. Describe the osteology of the head of the humerus. Name the muscles attached to it and describe one of them.

2. What structures would you cut in doing an amputation at the upper third of the femur?

3. Describe the portal circulation; what is the collateral circulation when the portal vein is blocked?

4. (a) Name the chambers of the heart. (b) The valves of heart and give their surface markings. (c) What is the nerve supply of the heart?

5. Give the branches of the common carotid artery.

6. Name the foramina at the base of the skull and the structures transmitted through each.

7. Discuss the anatomy of the uterus and vagina. What is the pouch of Douglas?

8. Give an anatomic description of the bronchial tubes.

9. Name and locate the ventricles of the brain. Where may the cerebrospinal fluid be normally found? How does it pass from the lateral ventricles to the cord?

10. Explain the following reflexes: (a) Pain in the region of the right shoulder in diseases of the liver and gall bladder; (b) rigidity of the abdominal wall in the acute inflammation of the appendix; (c) pain in the testicle during the passage of a stone from the kidney.

SURGERY

Dr. Hubert A. Royster

1. Give the indications for and describe the methods of blood transfusion.

2. What are the causes of stricture of the esophagus? How would you manage a case?

3. Discuss the surgical diseases of the spleen.

4. (a) Give the treatment of a fractured patella; (b) the pathology and treatment of a sprained ankle.

5. Give the diagnosis and treatment of rupture of the bladder.

6. Name the neoplasms of the testis and treatment for each.

7. (a) How would you treat varicose veins of the lower extremity? (b) Give the etiology and treatment of thrombophlebitis of the femoral vein.

8. Outline your procedure in a pistol shot wound of the abdomen.

9. (a) Mention the varieties and signs of cataract and the indications for operation; (b) name the nasal accessory sinuses and conditions due to their infection.

10. Define: diaphysis, leukoplakia, hypospadias, skiagraph, bronchoscopy, glossitis, osteomalacia, galactocele, sequestrotomy, pyelography.

PHYSIOLOGY, PATHOLOGY AND BACTERIOLOGY

Dr. M. L. Stevens

1. (a) Explain briefly what is meant by nitrogen equilibrium. (b) Is it possible for one who is in nitrogen equilibrium to be gaining or losing in weight? Give reason for answer.

2. What danger may result from transfusion of blood from the veins of one animal to the veins of another or from one individual to another? Explain cause.

3. Give briefly the pathology of round-cell sarcoma.

4. Describe the pathologic changes that take place in acute endocarditis.

5. Give the pathology of gastric ulcer.

6. Name three parasitic fungi which are causes of diseases and the disease caused by each.

7. What are protozoa? Name a pathogenic protozoon. Outline laboratory method of examining for same.

8. Define amboceptor, anaphylaxis, bacterium, saprpophyte, micron.

Note.—The written examination will be supplemented by an oral or practical laboratory examination.

CHEMISTRY AND HYGIENE

Dr. Isaac M. Taylor

1. What is inorganic chemistry? Organic chemistry? What element is a necessary component of all organic compounds?

2. In the purification of drinking water, describe distillation, filtration, precipitation. Which of these is absolutely safe and which is applicable to municipal supplies?

3. What is meant by a chemical antidote, with an example? What is meant by a physiological antidote, with an example?

4. What is the acid constituent of gastric juice? urine? and bile?

5. Give an approved method for determining the presence of glucose in urine. What diseased condition does the presence of glucose indicate?

6. What are peptones and how are they produced? How do the albumins differ from peptones? Give a test for peptones.

7. Describe a chemical test for blood.

8. Describe the appearance of urea and uric acid, and give a chemical test for each.

9. What are the necessary hygienic conditions of a model sleeping room, floor area, height of wall, window area, and cubic air space to each occupant?

10. What diseases are preventable by timely administration of sera and vaccines?

LICENSES GRANTED

Raleigh, June 24–27, 1919

BY EXAMINATION

The following applicants passed examination successfully and were granted license:

James E. Andrews.....Creswell
K. Hubert Bailey.....Zebulon
Gilbert M. Billings.....Morganton
Harvey M. Brinkley.....Elm City
James S. Brewer.....Fayetteville
George M. Brooks.....Elm City
Needham B. Broughton.....Raleigh
Kenan Casteen.....Rose Hill
Lacy N. Conoly.....Maxton
Grady C. Cooke.....Winston-Salem
William M. Coppridge.....Durham
Charles O. Delaney.....Matthews
William H. Dixon.....Rocky Mount
Amos C. Duncan.....Bostic
Avon H. Elliott.....Thornwall
Frank A. Ellis.....Salisbury
Giles M. Fleming.....Cleveland
William G. Flickinger.....Gordonville, Penn.
Howitt H. Foster.....Branchville, Va.
Claude H. Fryar.....Delway
Henry W. Hall.....Fayetteville
John W. Harbison.....Morganton
Crawford A. Hart.....Mooresville
Chester J. Helsebeck.....Rural Hall
John P. Henderson.....Portsmouth, Va.
Emery C. Herman.....Conover
Frederick C. Hubbard.....Wilkesboro
John P. Hunter.....Cary
James C. Joyner.....Princeton
DeWitt Kluttz.....Davidson
Henry Wise Lyon.....Windsor
James E. McClees.....Phoenix, Va.
Burrus B. McGuire.....Wheeling, W. Va.
Edwin G. McMillan.....Laurinburg
William A. Marlowe.....Wilson
Frank B. Marsh.....Salisbury
John W. Martin.....Roanoke Rapids
David R. Perry.....Zebulon
Earl E. Pittman.....Falkland
James V. Price, Jr.....Madison

Frank L. Ray.....Richmond
Norwood C. Riddle.....Jonesboro
Frank Sabiston.....Jacksonville
Fred B. Scruggs.....Rutherfordton
Claude B. Squires.....Charlotte
William R. Stanford.....Teer
Eugene S. Sugg.....Chapel Hill
Hunter McG. Sweaney.....Durham
Roy C. Tatum.....Duke
David T. Tayloe, Jr.....Washington
William G. Taylor.....Greensboro
Edgar S. Thompson.....Fairmont
Thomas M. Watson.....Wagram
Gordon F. West.....Camden, N. J.
Walter P. Whitted.....Mebane
Leonidas P. Williams.....Warsaw
Robert G. Wilson.....Swannanoa
William S. Woody.....Crew
Arthur T. Wyatt.....Raleigh

LICENSED BY RECIPROCITY

Horace M. Baker.....Lumberton
Louis E. Bisch.....Asheville
Geo. W. Botts.....Nashville
Jacob C. Bowman.....(Location undecided)
Jas. W. Campbell.....Gastonia
Harry W. Cease.....(Location undecided)
Clarence M. Cheadle.....(Location undecided)
Pliny W. Coe.....Gold Hill
Joseph A. Elliott.....Charlotte
Varney Hazlewood.....Asheville
Harry H. Johnson.....Louisburg
Henry P. Ledford.....Stocksville
J. J. W. Looney.....Rocky Mount
Geo. S. MacPherson.....Asheville
W. C. Mason.....Culberson
Paul O. Owsley.....Asheville
Wilson Pendleton.....Asheville
Wesley R. Putney.....Littleton
Frank H. Richardson.....Charlotte
Wm. A. Sams.....Marshall
W. A. Sedwick.....Asheville
H. Frank Stiltner.....Alcoa, Tenn.
Thompson F. Wickliffe.....Kinston

LIMITED LICENSES

Dr. Tivis S. Ashley, of Lansing, N. C., was granted limited license to practice in Kelton, Piney Creek and House Creek townships, Ashe County.

Dr. Allen F. Stiles, of Robinsville, N. C., was granted limited license to practice in Graham County, N. C.

ALPHABETICAL LIST OF MEMBERS OF MEDICAL SOCIETY WITH POSTOFFICE ADDRESSES

Those marked (*) were present at the annual convention at Pinehurst

Name	*Address*
Abel, J. F.	Waynesville
*Abernethy, C. O.	Raleigh
Abernathy, H. N.	Denver
*Achorn, J. W.	Pinebluff
Adams, C. A.	Durham
Adams, C. E.	Gastonia
Adams, J. L.	Asheville
*Adams, M. R. (Hon.)	Statesville
*Adams, R. K.	Raleigh
Adkins, M. T.	Durham
Aiken, Alfred	Wake Forest
*Alexander, Annie L. (Hon.)	Charlotte
Alexander, Janet	Charlotte
*Alexander, J. R.	Charlotte
*Allan, William	Charlotte
Allen, B. G.	Henderson
Allen, J. A.	New London
Allen, R. L.	Waynesville
*Allgood, R. A.	Fayetteville
Allhand, J. M.	Cliffside
Ambler, C. P.	Asheville
*Anders, McG.	Gastonia
Anderson, Abel	Denton
*Anderson, Albert	Raleigh
Anderson, C. A.	Burlington
Anderson, J. A.	Gastonia
Anderson, J. G.	Asheville
*Anderson, T. E. (Hon.)	Statesville
Anderson, W. H.	Wilson
Anderson, W. S.	Wilson
Andrews, C. R.	Asheville
Andrews, N. H.	Rowland
Andrews, R. M.	Bostic
Archer, I. J.	Black Mountain
*Armfield, R.	Marshville
*Asbury, F. E. (Hon.)	Asheboro
Ashby, E. C.	Mount Airy
Ashby, T. B.	Mount Airy
Ashcraft, J. E.	Monroe
Ashe, J. R.	Charlotte
Ashworth, B. L.	Marion
Ashworth, W. C.	Greensboro
Atkins, B. T.	Badin
*Attmore, G. S. (Hon.)	Stonewall
Austin, D. R.	Charlotte
Austin, F. DeC.	Charlotte
Austin, J. A.	Charlotte
*Austin, J. W.	High Point
*Averitt, K. G.	Cedar Creek
Aydlett, H. T.	Greensboro
Aydlette, J. P.	Earls
Baggett, L.	Tabor
Baird, C. A.	Mount Airy
Baird, J. H.	Marshall
Baird, J. W.	Mars Hill
*Baker, J. M. (Hon.)	Tarboro
Baker, W. E.	Arden
Ball, M. W.	Newport
*Banner, C. W.	Greensboro
Barbee, G. S.	Zebulon
Barefoot, M. L.	Dunn
Barnes, B. F.	Elm City
Barrett, H. P.	Charlotte
Barron, A. A.	Charlotte
Basnight, T. G.	Stokes
Bass, H. H.	Henderson
Bass, S. P.	Tarboro
Battle, G. C.	Asheville
Battle, I. P.	Rocky Mount
Battle, J. P.	Nashville
Battle, J. T. J. (Hon.)	Greensboro
Battle, K. P. (Hon.)	Raleigh
Battle, S. W. (Hon.)	Asheville
Baynes, R. H.	Hurdle Mills
*Baynes, R. S.	Hurdle Mills
Beall, L. G.	Asheville
Beall, W. P. (Hon.)	Greensboro
Beam, H. M.	Woods
*Beam, R. S.	Lumberton
Beard, G. C.	Kerr, R. F. D.
*Beasley, E. B.	Fountain
*Bell, A. E.	Mooresville
Bell, C. W.	Raleigh
Bell, G. M.	Wakefield
Bellamy, Robt. H.	Wilmington

Name	*Address*
Bellamy, W. J. H. (Hon.)	Wilmington
Belton, J. F.	Winston-Salem
Bennett, A. McD.	Bryson City
Bernard, H.	Pinnacle
Best, H. B.	Wilson
Biggs, M. H.	Rutherfordton
Bisch, Louis C.	Asheville
*Bitting, N. D.	Durham
*Bizzell, T. M.	Goldsboro
*Blair, A. McN.	Southern Pines
Blair, M. P.	Marshville
Blalock, B. K.	North Charlotte
Blalock, N. M.	McCullers
Blanchard, T. W.	Hobbsville
Blevins, Manley	Beaver Creek
Blount, J. G.	Washington
Blue, A. McN.	Carthage
Boddie, N. P. (Hon.)	Durham
*Boice, E. S.	Rocky Mount
Bolles, C. P., Jr	Wilmington
*Bolton, Mahlon (Hon.)	Rich Square
*Bonner, H. M.	New Bern
*Bonner, K. P. B.	Morehead City
*Booker, L. S.	Durham
*Boone, W. H.	Durham
Booth, T. L.	Oxford
Booth, S. D. (Hon.)	Oxford
Bostic, W. C.	Forest City
*Botts, G. W.	Nashville
Bowdoin, G. E.	Wilmington
Bowers, M. A.	Thomasville
*Bowling, E. H.	Durham
Bowman, E. L.	McDonalds
*Bowman, H. E.	Aberdeen
Bowman, H. P.	Greensboro
Bown, H. H.	Asheville
Boyette, E. C.	Charlotte
Boyles, A. C.	Bahama
Boyles, J. H.	Greensboro
Braddy, W. H.	Greensboro
Bradsher, W. A.	Roxboro
Brandon, W. R.	Kannapolis
Brantley, Hassell	Spring Hope
Brawley, M. H.	Salisbury
Brawley, R. V.	Salisbury
Bray, T. L.	Rocky Mount
*Brenizer, A. G., Jr	Charlotte
Briggs, H. H.	Asheville
Brittle, P. C.	Conway
Brooks, H. M.	Dandy
Brookshire, H. G.	Leicester, R. F. D.
Brown, F. L.	Southport
Brown, Geo. A.	Mount Ulla
Brown, G. W.	Raeford
Brown, J. P.	Fairmont
Brown, J. S.	Hendersonville
Brownson, W. C.	Asheville
Bryan, L. D.	Snead's Ferry
Bryant, C. G.	Yadkinville
Bryson, E. J.	Cullowhee
Buchanan, C. L.	Union Mills
*Buchanan, E. J.	Lexington
Buchanan, L. T.	Wake Forest
Buckner, J. M.	Swannanoa
Buckner, R. G.	Asheville
Buffalo, J. S.	Garner
*Bulla, A. C.	Winston-Salem
*Bullard, G. F.	Elizabethtown
*Bullock, T. C.	Autryville
Bullock, W. B.	Hester
Bullock, W. J.	Belhaven
Bulluck, E. S.	Wilmington
Bulluck, D. W. (Hon.)	Wilmington
Bunn, J. J.	Mount Pleasant
Burbage, T. I.	Como
Burleson, W. B.	Plum Tree
Burleyson, L. N.	Concord
Burnett, I. E.	Big Laurel
Burns, W. M.	Goldston
*Burrus, J. T.	High Point
*Burt, B. W.	New Hill
*Burt, S. P.	Louisburg
Busby, J. G.	Spencer
Butt, V. R.	Bakersville
*Byerly, A. B.	Cooleemee
Bynum, John	Winston-Salem
Bynum, W. H.	Germanton
Caddell, S. W.	Elon College
Caldwell, D. G. (Hon.)	Concord
Calloway, A. W.	Asheville
Campbell, A. C.	Raleigh
Campbell, J. I.	Norwood
Campbell, J. R.	Newton
Candler, C. Z.	Sylva
Cannady, S. H.	Oxford
*Carlton, R. L.	Winston-Salem
Carmichael, T. W.	Rowland
*Carpenter, F. A.	Statesville
Carr, R. L.	Rose Hill

Name	*Address*
Carroll, E. Delia Dixon	Raleigh
*Carroll, J. L.	Hookerton
*Carroll, J. W.	Wallace
Carstarphen, W. T.	Wake Forest
Carter, G. H.	Kings Creek
Carter, H. W.	Washington
Carter, J. E. T.	Walnut
Cason, H. M. S.	Edenton
Cathell, J. E.	Wilmington
Caton, G. A.	New Bern
Caveness, Z. M.	Raleigh
Champion, C. O.	Mooresboro
*Cheatham, Arch	Durham
Cheek, C. E.	Fuquay Springs
Cheesborough, T. P.	Asheville
Clark, E. S.	Clarkton
Clark, G. L. (Hon.)	Clarkton
Clemenger, F. J.	Asheville
Cliff, B. F.	Hendersonville
*Clifford, J. S.	Charlotte
Clingman, J. J.	Cana
Clodfelter, C. M.	Lexington
Cloninger, L. V.	Statesville
Cobb, W. H.	Goldsboro
Cocke, C. H.	Asheville
Cocke, E. R.	Asheville
Cocke, J. E.	Asheville
Codington, H. A.	Wilmington
Coe, S. S.	High Point
*Coffey, L. H.	Lenoir
Colby, C. DeW.	Asheville
Cole, W. F.	Greensboro
Coleman, G. S.	Kenly
Cooke, Q. H.	Woodland
*Cooper, G. M.	Raleigh
Cooper, J. A.	Almond
*Coppedge, N. P.	Ellerbe
Coppedge, T. O.	Nashville
Costello, M. J.	Asheville
*Costner, T. F.	Lumberton
Cotten, C. E.	Black Mountain
Couch, V. F.	Yadkinville
Cowell, W.	Shawboro
Cox, B. F.	Palmerville
Cox, E. L.	Jacksonville
Cox, G. S.	Tabor
Cox, Thos. A.	Hertford
Cozart, W. S.	Holly Springs
Cranmer, J. B.	Wilmington
*Craven, F. C.	Ramseur
Craven, T.	Charlotte
Craven, W. W.	Huntersville
Crawford, J. M.	Asheville
Crawford, W. B.	Goldsboro
Crocker, W. D.	Warsaw
Cromartie, R. S.	Garland
Croom, A. B.	Wilmington
Croom, G. A.	Wilmington
*Crouch, A. McR.	Raleigh
*Crowell, A. J.	Charlotte
*Crowell, L. A.	Lincolnton
Crowell, W. H.	Whiteville
Crumpler, Paul	Clinton
Cummings, M. P.	Reidsville
Currie, E. W.	Salisbury
*Daligny, Charles	Troy
Dalton, D. N.	Winston-Salem
Dalton, W. N.	Winston-Salem
*Daniel, N. C.	Oxford
*Daniels, O. C.	Goldsboro
Daniels, Ralph	Goldsboro
*Davidson, J. E. S.	Charlotte
*Davis, J. F.	Glendon
Davis, J. J.	Beaufort
Davis, Wm. C.	Summerfield
Davis, W. W.	Belmont
Dawson, W. W.	Grifton
*DeArmon, J. McC. (Hon.)	Charlotte
Dees, D. A.	Bayboro
*Dees, R. E.	Greensboro
Dees, R. O.	Greensboro
Denchfield, A. L.	Asheville
Denny, W. W. (Hon.)	Pink Hill
*Denson, H. A.	Bennett
DeVane, J. D.	East Arcadia
Dick, J. V.	Gibsonville
*Dickinson, E. T.	Wilson
Dickson, A. P.	Raeford
Dillard, G. P.	Draper
Dillard, R., Jr., (Hon.)	Edenton
Disosway, A. W.	Plymouth
Divers, G. T.	Mount Airy
*Dixon, G. E.	Hendersonville
Dixon, J.	Ayden
Dixon, W. H.	Ayden
*Dodson, H. H. (Hon.)	Greensboro
Donnelly, J.	Charlotte
Dowdy, J. E.	Winston-Salem
Drafts, A. B.	Hendersonville

Name	*Address*
Duffy, B. M.	New Bern
Duffy, F. (Hon.)	New Bern
Duffy, R. N.	New Bern
Duncan, J. E.	North Wilkesboro
Dunn, W. L.	Asheville
Eagles, C. S.	Wilson, R. F. D. 4
*Eason, Oscar	Princeton
Eckel, O. F.	Asheville
*Eddleman, H. M.	Gastonia
Edgerton, J. L.	Hendersonville
Edwards, A. D.	Winston-Salem
*Edwards, B. O.	Landis
Edwards, F. D.,	Cleveland Mills, R.F.D.
Edwards, G. C. (Hon.)	Hookerton
Edwards, J. D.	Siler City
Elias, L. W.	Asheville
*Ellen, C. J.	Greenville
Eller, A. J.	Readybranch
Ellington, A. J.	Raleigh
Ellington, J. H.	Sandy Ridge
Ellington, S. B.	Wentworth
Elliott, W. F.	Lincolnton
Ellis, F. R.	Salisbury
Ellis, R. C.	Shelby
English, E. S.	Brevard
English, I. L.	Faust
Erwin, E. A.	Laurinburg
*Evans, L. B.	Windsor
Evans, Wm. E.	Rowland
*Everett, A. C.	Rockingham
Faison, I. W. (Hon.)	Charlotte
Faison, W. W. (Hon.)	Goldsboro
Faison, Y. W.	Charlotte
Farrior, J. W.	Warsaw
Farthing, L. E.	Wilmington
*Fassett, B. W.	Durham
*Faucette, T. S.	Burlington
Fearing, Isaiah	Elizabeth City
*Fearing, Zenas	Elizabeth City
Fearington, J. P.	Winston-Salem
Felts, R. L.	Durham
*Finch, O. E.	Apex
Finney, J. R.	Boonville
Flack, R. E.	Asheville
Fleming, M. I.	Rocky Mount
*Fletcher, M. H. (Hon.)	Asheville
Flippin, J. M.	Mount Airy
Flippin, R. E. L.	Pilot Mountain
Flippin, S. T.	Siloam
Flowe, J. W.	Kannapolis
*Flowe, R. Frank	Kannapolis
Flowers, C. A.	Columbia
*Flowers, G. E.	Hickory
Floyd, A. G.	Fair Bluff
Flynt, S. S.	Rural Hall
Foil, M. A.	Mount Pleasant
Fonts, J. H.	Franklin
Fortune, A. F.	Greensboro
Foster, J. F.	Bailey
Fowler, M. L.	Zebulon
Fowlkes, J. I.	Hamlet
Fox, M. F. (Hon.)	Guilford College
*Fox, T. I.	Franklinville
Frazer, H. T.	Asheville
Freeman, R. A. (Hon.)	Burlington
*Freeman, R. H.	Raleigh
Fresh, W. M.	Weaverville
Frizzelle, M. T.	Ayden
*Futrell, L. M.	Murfreesboro
Gallant, R. M.	Charlotte
Galloway, W. C. (Hon.)	Wilmington
*Gambill, I. S.	Dobson
Gamble, J. R.	Lincolnton
Garbey, R. B.	State Road
Gardner, G. D.	Asheville
*Garren, R. H.	Monroe
*Garrett, F. J.	Bessemer City
Garris, Frank H.	Lewiston
*Garrison, D. A.	Gastonia
Gary, R. H.	Murfreesboro
Gates, F. P.	Manteo
Gatling, O. A.	Knotts Island
Gayle, E. M.	Morganton
Gentry, G. W.	Timberlake
Gibbon, R. L. (Hon.)	Charlotte
Gibbs, E. W.	Mooresboro
*Gibbs, J. B.	Burnsville
*Gibbs, N. M.	New Bern
Gibson, J. S.	Gibson
Gibson, L. O.	Statesville
*Gibson, M. R.	Raleigh
Gill, R. J.	Henderson
Gilmer, C. S.	Greensboro
Gilmer, B. H.	Cape Charles
Gilmore, W. D.	Mooresville
Gilreath, F. H.	North Wilkesboro
Ginn, T. L.	Goldsboro

Name	*Address*
*Glenn, Eug. B.	Asheville
*Glenn, H. F	Gastonia
*Glenn, L. N	Gastonia
Gold, C. F	Ellenboro
Goley, W. R	Graham
*Goodman, A. B	Lenoir
Goodman, Erastus G	Lanvale
Goodwin, A. W. (Hon.)	Raleigh
*Gordon, J. R	Raleigh
Gouger, G. J	Concord, R. F. D.
Gove, Anna M	Greensboro
*Grady, J. C	Kenly
Grady, L. V	Taylors
Grady, Wm. E	Tryon
Graham, Benj. R	Wilmington
Graham, G. A	Raeford
Graham, Joseph	Durham
Graham, W. A	Charlotte
*Grantham, W. L	Asheville
Gray, E. P	Winston-Salem
Grayson, C. S	High Point
Green, Arthur W	Ahoskie
Green, J. C	Greenville
Greene, J. B	Asheville
*Greene, Thos. M	Wilmington
*Greenwood, A. B	Raleigh
Greenwood, S. E	Fletcher
Griffin, J. A. (Hon.)	Clayton
Griffin, N. W	Morganton
*Griffin, W. R	Asheville
Griffith, F. W	Asheville
Griffith, L. M	Asheville
Griggs, W. T	Lawndale
Griggs, J. B	Elizabeth City
Griggs, W. P	Poplar Branch
*Grimes, W. L	Winston-Salem
Hackett, L. E	Charlotte
*Hackney, B. H	Lucama
*Halford, J. W	Lillington
*Hall, J. C	Albemarle
Hall, P. B	Belmont
Hall, Wright (Hon.)	Wilmington
*Halsey, B. F	Roper
Halsey, Wm. H	Creswell
Hammock, J. C	Walkertown
Hammond, A. F	Pollocksville
Hamrick, T. G	Shelby
Hand, E. H	Pineville
Hardee, P. R	Stem
Harding, R. H	Boone
Harding, S. A., Yadkinville, R.F.D. 1	
Harding, T. R	Yadkinville
*Hardison, W. H	Creswell
Hardy, I. M	Kinston
Hargrove, R. H. (Hon.), Robersonville	
*Hargrove, W. F	Kinston
Harper, J. H	Snow Hill
Harper, J. M	Jefferson
Harrell, G. N	Murfreesboro
Harrell, S. N	Tarboro
Harrill, L. B	Caroleen
Harris, A. G	Fairfield
Harris, A. H	Wilmington
Harris, D. W	Maxton
*Harris, F. R. (Hon.)	Henderson
Harris, I. A. (Hon.)	Alexander
Harris, J. H	Franklinton
Harrison, A. S	Enfield
Harrison, Edmund	Greensboro
Harrison, H. H	Mayodan
Hart, E. R	Wilmington
Hartsell, F. E	Albemarle
Hassell, J. L	Creswell
Hathcock, T. A	Norwood
Hays, A. H	Fairmont
*Hays, Benj. K	Oxford
Haywood, F. J. (Hon.)	Raleigh
Haywood, Hubert	Raleigh
Haywood, Hubert B	Raleigh
*Hayworth, C. A	Coleridge
Hege, J. R	Clemmons
Heilig, H. G	Salisbury
Hemmingway, J. D	Bethel
Henderson, C. C	Mount Olive
Henderson, R. B	Franklinton
Henderson, S. McD.	Charlotte, R.F.D.
Herbert, F. L	Andrews
Herbert, W. P	Asheville
Herring, B. S	Wilson
Herring, W. C	Charlotte
Herron, A. M	Charlotte
Hester, J. R	Knightdale
Hiatt, H. B	High Point
Hickman, M. T	Hudson
Hicks, C. S	Durham
Hicks, I. F	Dunn
Hicks, Romeo	Henrietta
Hicks, W. N. (Hon.)	Durham
Highsmith, Chas	Dunn

Name	*Address*
*Highsmith, J. F.	Fayetteville
*Highsmith, Seavy	Fayetteville
Hill, C. D.	Durham
*Hill, D. J.	Lexington
Hill, J. N.	Murphy
Hill, L. H. (Hon.)	Germanton
Hill, W. I.	Albemarle
Hill, W. L.	Lexington, R.F.D. 4
Hilton, J. J.	Greensboro
Hines, E. R.	Rocky Mount
Hinnant, Milford	Micro
Hobgood, J. E.	Thomasville
*Hocutt, B. A.	Clayton
Hodges, J. M.	Cranberry
Hodgin, H. H.	Red Springs
Hoggard, W. A.	Woodville
Hollingsworth, E. M.	Mount Airy
*Hollingsworth, E. T.	Ivanhoe
Hollingsworth, R. E.	Mount Airy
Holloway, O. W.	Northside
Holloway, R. L.	West Durham
Hollyday, W. M.	Asheville
Holt, R. D.	Cherokee
*Holt, W. P.	Duke
Holt, W. T.	McLeansville
Honnett, Jos. Harry	Wilmington
Hood, J. S. B.	Kings Mountain
Hooks, T.	Smithfield
Hooper, D. D.	Sylva
Hooper, J. W.	Wilmington
Hoover, C. H.	Crouse
Hoover, H. R.	Black Creek
Horsley, H. T.	Franklin
Horton, M. C.	Raleigh
Horton, W. C.	Raleigh
Horton, W. P.	North Wilkesboro
Houck, A.	Lenoir
*Houser, E. A.	Fallston
Houser, O. J.	Charlotte
Houser, W. H.	Cherryville
Hovis, L. W.	Charlotte
Howe, W. B. W.	Hendersonville
Howell, W. L.	Ellerbe, R. F. D.
*Hoyle, H. B.	Biscoe
Hubbard, C. C.	Farmers
*Hudson, C. C.	Charlotte
Hudson, W. L. (Hon.)	Dunn
Hughes, F. W. (Hon.)	New Bern
Hunnicutt, W. J.	Asheville
Hunt, J. F.	Casar
Hunter, J. V.	Asheboro
*Hunter, L. W. (Hon.)	Sardis
Hunter, Myers	Charlotte
Hunter, N. C.	Huntersville
*Hunter, N. C.	Laurinburg
Huston, J. W.	Asheville
Hutchens, E. M.	North Wilkesboro
Hutchison, S. S.	Bladenboro
Hyatt, F. C.	Greensboro
Hyatt, H. O.	Kinston
Ingram, C. B.	Mount Gilead
Irvin, H.	Eureka
*Irwin, J. R. (Hon.)	Charlotte
*Ivey, H. B.	Goldsboro
Izlar, H. L.	Winston-Salem
Jackson, C. C.	Yeatesville
*Jackson, W. L.	High Point
Jacocks, W. P., 61 Broadway, N. Y.	
James, W. D.	Hamlet
*Jarboe, P.	Greensboro
Jenkins, C. L.	Raleigh
Jenkins, J. H.	Gastonia
Jerome, J. R.	Wingate
Jett, S. G.	Reidsville
Jewett, R. D. (Hon.)	Winston-Salem
*John, Peter	Laurinburg
Johnson, Alice E.	Asheville
Johnson, B. C.	Bunn
Johnson, H. H.	Louisburg
Johnson, J. B.	Old Fort, R.F.D. 1
Johnson, N. M. (Hon.)	Durham
Johnson, R. W.	Apex
*Johnson, T. C.	Lumberton
Johnson, W. C.	Canton
Johnson, W. M.	Winston-Salem
Johnston, J. G.	Charlotte
Johnston, R. H.	Wilson
*Jonas, J. F.	Marion
Jones, A. B.	Walnut Cove
Jones, Alex. F.	Ararat
Jones, C. M.	Grimesland
Jones, Clara E.	Goldsboro
Jones, E. H.	Raleigh
Jones, J. W.	Boone
Jones, Thos. J.	Lansing
Jones, T. Lester	Lansing
*Jones, Wm. M., Jr.	Greensboro
Jordan, A. C.	Durham

Name	*Address*
Jordan, C. S.	Asheville
*Jordan, T. M. (Hon.)	Raleigh
*Jordan, W. S.	Fayetteville
*Juat, Francis	Raeford
Judd, E. C.	Raleigh
Judd, J. M.	Cardenas
*Julian, C. A.	Thomasville
Justice, G. B.	Marion
Justice, Z. K.	Davidson
Kafer, O. O.	Edward
Kapp, H. H.	Winston-Salem
*Keiger, Jas. A.	Raleigh
*Keiger, O. R.	Winston-Salem
*Kendrick, R. L.	Elizabeth City
*Kent, A. A.	Lenoir
Kerr, J. D., Jr	Clinton
Kerr, J. E.	Lilesville
Kibler, W. H.	Morganton
Killian, P. B.	Hayesville
Killian, R. B.	Lincolnton, R. F. D.
*King, P. M.	Charlotte
*King, R. M.	Concord
Kinsman, H. F.	Hamlet
Kirby, G. S.	Marion
Kirk, W. R.	Hendersonville
*Kitchin, T. D.	Scotland Neck
Kizer, W. C.	Reepsville
Knight, J. B. H.	Wilmington
Knight, W. P.	Greensboro
Knoefel, A. E.	Black Mountain
Knox, A. W. (Hon.)	Raleigh
*Knox, John, Jr	Lumberton
Koonce, S. E.	Wilmington
*Kornegay, G. E.	Kinston
*Lafferty, R. H.	Charlotte
Lamm, I. W.	Lucama
Lancaster, R. M.	Dobson
Landen, J. F.	Chinquapin
Lane, J. L.	Rocky Mount
*Large, H. Lee	Rocky Mount
*Lassiter, C. L.	Fremont
Laton, J. F.	Albemarle
*Lattimore, E. B.	Shelby
*Laughinghouse, Chas. O'H.	Greenville
Leak, W. G.	East Bend
Ledbetter, J. McD.	Rockingham
Lee, R. E.	Lincolnton
Lee, S. P. J.	Dunn, R. F. D. 2
Lee, L. V.	Lattimore
Leggett, K. (Hon.)	Hobgood
LeGwin, J. B.	Wilmington
Leinback, R. F.	Charlotte
Lentz, C. M.	Albemarle
Lewis, G. W.	Wilson
Lewis, H. W. (Hon.)	Jackson
*Lewis, R. H. (Hon.)	Raleigh
Lilly, J. M.	Fayetteville
*Linney, R. Z.	Charlotte
*Linville, A. Y.	Winston-Salem
Lister, E. W.	Weeksville
Lister, J. L.	Jackson
Little, E. E.	Statesville, R.F.D. 6
Lloyd, B. B.	Chapel Hill
*Loftin, P. B.	Beaufort
Logan, F. W. F.	Union Mills
*Long, B. L. (Hon.)	Hamilton
*Long, E. F.	Lexington
Long, E. M.	Oak City
Long, F. L.	Catawba
Long, Glenn	Catawba
Long, H. F.	Statesville
Long, J. W. (Hon.)	Greensboro
Long, M. T.	Newland
*Long, V. M.	Winston-Salem
Long, W. H.	Durham
Long, W. T.	Roxboro
Looney, J. J. W.	Rocky Mount
Lord, M. J.	Asheville
Love, B. E.	Roxboro
Love, W. J. (Hon.)	Wilmington
Love, W. M.	Unionville
*Lowery, J. R.	Raleigh
Lubchenko, N. E.	Newells
Lucas, W. H. G.	White Oak
Lyle, S. H.	Franklin
Lynch, J. M.	Asheville
McAdams, C. R.	McAdenville
McAnally, W. J.	High Point
*McBrayer, L. B.	Sanatorium
McBrayer, Reuben	Sanatorium
McBrayer, T. E.	Shelby
*McCain, H. W.	High Point
*McCain, P. P.	Sanatorium
McCain, W. R.	Waxhaw
McCanless, W. V.	Danbury
McClelland, J. O.	Maxton
McCombs, C. J.	Gastonia

Name	*Address*
MacConnell, J. W.	Davidson
*McCotter, S. E.	Bayboro
McCoy, E. M.	Huntersville
McCoy, T. M.	Mount Holly
McCracken, C. M.	Fairview
*McCracken, J. R.	Waynesville
McCuiston, A. M.	Richlands
McCullers, J. J. L.	McCullers
*McDaniels, L. E.	Lasker
*McDonald, A. A.	Jackson Springs
McDonald, A. D. (Hon.)	Wilmington
McDowell, F. C.	Zebulon
*McFadyen, P. R.	Concord
McGeachy, R. S.	Raleigh
McGee, J. W., Jr	Raleigh
McGehee, J. W.	Reidsville
*McGougan, J. V.	Fayetteville
*McIntosh, W. R.	Roberdell
McIver, E. M.	Jonesboro
*McIver, Lynn	Sanford
McKay, H. W.	Charlotte
*McKay, J. F.	Buies Creek
McKee, J. S.	Raleigh
*McKenzie, W. W.	Salisbury
MacKethan, D. G.	Fayetteville
MacKethan, J. A.	Fayetteville
*McLaughlin, C. S.	Charlotte
McLaughlin, J. E.	Statesville
McLean, Allen	Laurinburg
McLean, J. W.	Godwin
McLean, Peter	Laurinburg
McLemore, G. A.	Clayton
*McLeod, A. H.	Aberdeen
*McLeod, G. M.	Carthage
McManus, W. L.	Bonlee
*McMillan, B. F. (Hon.)	Red Springs
*McMillan, J. L. (Hon.)	Red Springs
McMillan, J. D. (Hon.)	Edenton
*McMillan, J. M.	Candor
McMillan, R. D.	Red Springs
McMillan, W. D. (Hon.)	Wilmington
McMullan, T. S.	Elizabeth City
*McNairy, C. B.	Kinston
McNairy, Caroline	Lenoir
*McNeill, J. W. (Hon.)	Fayetteville
MacNider, W. deB.	Chapel Hill
*McPhail, L. D.	Rockingham
*McPhaul, W. A.	Lumberton
*McPherson, C. W.	Burlington
McPherson, R. G.	Saxapahaw
McPherson, S. D.	Durham
Mallett, E. P.	Asheville
Malloy, S. A.	Yanceyville
Malone, J. E.	Louisburg
Maness, J. M.	Roberdell
Mann, I. T.	High Point
*Mann, S. M.	Moyock
Manning, I. H.	Chapel Hill
*Manning, J. M.	Durham
Marr, M. W.	Pinehurst
Marriott, H. B.	Battleboro
*Martin, J. A.	Lumberton
Martin, J. F.	Benson
Martin, J. H.	Red Oak
*Martin, M. S.	Mount Airy
Martin, R. E.	Charlotte
Martin, S. L.	Leaksville
Martin, W. C.	Mocksville
Martin, W. J.	Davidson
Matheson, J. P.	Charlotte
Matheson, R. C.	Madison
Matthews, J. O.	Clinton
*Matthews, M. L.	Sanford
Matthews, Thos. A.	Castalia
Matthews, Wm. W.	Spray
Maxwell, C. S.	Beaufort
*Maxwell, J. F.	Pink Hill
Mayerberg, I. W.	Selma
Meadows, E. B.	Oxford
Meadows, W. J.	Greensboro
Mebane, W. C.	Wilmington
Meisenheimer, C. A. (Hon.)	Charlotte
Meisenheimer, T. F. (Hon.)	Morven
Melvin, W. C.	Linden
Merritt, J. H.	Woodsdale, R.F.D. 2
Meriwether, B. M.	Asheville
Michaux, E. R.	Greensboro
*Miles, May S.	Greensboro
Miller, J. F.	Wilmington
Miller, R. B.	Goldsboro
Miller, R. C.	Mayworth
*Milliken, J. S.	Moncure
Mills, C. H. C.	Charlotte
Mimms, C. W.	Winston-Salem
Minor, C. L.	Asheville
Mitchell, J. H.	Ahoskie
Mitchell, P. H.	Ahoskie
Mitchell, W. F.	Shelby
*Mitchener, J. S.	Edenton
*Mock, F. L.	Lexington, R.F.D. 3

Name	*Address*
Monk, H. G	Trenton
Monk, H. L	Spencer
Monroe, J. P	Sanford
*Monroe, W. A	Sanford
Montague, S. S	Roxboro, R.F.D. 2
Montgomery, J. C	Charlotte
Moore, A. W	Charlotte
Moore, C. E	Greensboro
Moore, C. E. (Hon.)	Wilson
*Moore, E. G. (Hon.)	Elm City
Moore, J. E	Mount Olive
Moore, J. L	Wendell
Moore, J. N	Marshall
*Moore, K. C	Wilson
*Moore, Oren	Charlotte
Moore, R. A	Charlotte
*Moore, T. V	Acme
Moore, W. B	Mount Airy
Moore, W. H	Wilmington
Moore, W. J	Asheboro
Moorefield, R. H	Westfield, R.F.D. 1
Morphew, F. M	Marion
Morrill, D. S	Farmville
Morrill, Jenness	Falkland
Morris, E. R	Asheville
Morris, G. B	Mount Olive
Morris, J. A	Oxford, R.F.D. 2
Morrow, W. C	Andrews
Morse, L. B	Hendersonville
Moseley, C. W	Greensboro
Moseley, Z. V	Kinston
Moser, W. D	Burlington
*Mudgett, W. C	Southern Pines
*Munroe, J. P. (Hon.)	Charlotte
Muns, L. A	Smithfield
*Murphy, J. G	Wilmington
Murphy, W. B	Snow Hill
*Myers, J. Q	Charlotte
Nalle, B. C	Charlotte
*Nance, G. B	Monroe
Nash, J. Fred	St. Pauls
*Neal, J. W	Monroe
Nelson, R. J	Robersonville
Nesbitt, C. T	Wilmington
Newbern, J. M	Jarvisburg
Newby, G. E	Hertford
Newell, H. A	Louisburg
Newell, J. O	Louisburg
Newell, L. B	Charlotte
Newman, H. H	Salisbury
Nichols, A. A	Sylva
Nichols, A. F	Roxboro
Nichols, A. S	Sylva
Nichols, R. E	Durham
Nicholson, C. R	Harmony
Nicholson, J. L	Washington
Nicholson, P. A	Washington
Nicholson, S. T. (Hon.)	Washington
Nisbet, W. O	Charlotte
Noble, R. P	Raleigh
Noble, R. J. (Hon.)	Selma
Nobles, J. E. (Hon.)	Greenville
Norman, G. W	Pomona
Norman, J. S	Bladenboro
Norris, Henry	Rutherfordton
Oates, Geo.	Grover
Ogburn, H. H	Greensboro
*Olive, P. W	Wade
*Olive, W. W	Durham
Oliver, A. S	Benson
Orr, C. C	Asheville
Orr, C. V	Andrews
Orr, P. B	Asheville
Orr, W. L	Matthews
Packard, G. H	White Rock
*Paddison, J. R., Jr	Kernersville
Page, B. W	Lumberton
Palmer, B. H	Shelby
Palmer, M. C	Tryon
*Palmer, R. W	Gulf
Parker, C. G	Woodland
Parker, C. P	Garysburg
Parker, G. E	Benson
Parker, H. P	Candler
*Parker, J. R	Burlington
Parker, J. R	Clinton
Parker, O. L	Clinton
Parker, P. G	Potecasi
Parker, W. R	Woodland
Parrott, A. D	Kinston
*Parrott, J. M	Kinston
Parrott, M. C	Kinston
Parrott, W. T	Kinston
Parson, W. H	Charlotte
Pate, F. J	Greensboro
*Pate, James G	Gibson
Patrick, J. E	Seven Springs

Name	*Address*
Patrick, L. N.	Gastonia
Patterson, J. A.	Concord
*Patterson, Reid	Charlotte
Payne, R. L.	Monroe
Peacock, J. W.	Thomasville
Peck, E. J.	Hot Springs
Peck, W. A.	Bee Log
Peeler, C. N.	Charlotte
Peeler, J. H.	Salisbury
Peete, C. H.	Warrenton
Pegram, R. W. S.	Canton
Pemberton, W. D. (Hon.)	Concord
Pendleton, A. S.	Raleigh
Penny, J. A. J.	Neuse
*Pepper, J. K.	Winston-Salem
Perkins, D. R.	Marshville
Perkins, J. R.	Winston-Salem
Perkins, S. L.	Jefferson
Perry, E. M.	Louisburg
Perry, H. G.	Wood
Perry, M. P. (Hon.)	Macon
Perry, W. C.	Hamlet
Person, E. C.	Pikeville
Person, H. M.	Goldsboro
*Person, J. B., Jr	Selma
*Person, T. E.	Stantonburg
Peters, W. A.	Elizabeth City
Peterson, C. A.	Spruce Pine
Petrie, R. W.	Charlotte
Petteway, G. H.	Charlotte
*Pfohl, S. F.	Winston-Salem
Pharr, T. F. (Hon.)	Concord
Pharr, W. W. (Hon.)	Charlotte
*Phillips, C. C.	Wallburg
Phillips, C. H.	Fullers
Phillips, J. J.	Charlotte
Pickett, J. A.	Burlington, R.F.D.
Picot, L. J. (Hon.)	Littleton
Pierce, S. B.	Weldon
*Pittman, R. L.	Fayetteville
Pitts, W. I.	Lenoir
Pollard, W. B.	Winton
Pope, H. T.	Lumberton
Potter, W. T.	Aurora
Powell, H. H.	Stantonsburg
Powell, Jesse A.	Harrelsville
Powers, J. B., Jr	Wake Forest
Pressly, G. W.	Charlotte
Pridgen, C. L.	Wilmington
Prince, D. M. (Hon.)	Laurinburg
Pritchard, A. T.	Asheville
Pritchard, J. L.	Windsor
Procter, I. M.	Raleigh
Proffitt, T. J.	Elk Park
Pugh, C. H.	Gastonia
Purefoy, G. W. (Hon.)	Asheville
Putney, R. H.	Elm City
Query, R. Z.	Charlotte, R.F.D.
*Quickel, T. C.	Gastonia
Quillen, E. B.	Rocky Mount
Quinn, R. F.	Magnolia
Ramsauer, G. A.	China Grove
Rankin, P. R.	Mt. Gilead
Rankin, S. W.	Concord
*Rankin, W. S.	Raleigh
*Ransom, J. L.	Pineville
Ray, John B.	Leaksville
Ray, J. L.	Burnsville
Ray, O. L.	Raleigh, R.F.D. 1
Reaves, C. R.	Greensboro
Reaves, W. P.	Greensboro
*Reece, J. M.	Elkin
Reed, D. H.	Beaufort
Reedy, Howard	Rowland
Reeves, A. F.	Asheville
Redding, A. H.	Cedar Falls
*Register, E. C. (Hon.)	Charlotte
*Register, F. M.	Jackson
Reid, G. P.	Forest City
Reid, John Franklin	Concord
Reid, J. W.	Lowell
Reid, T. N.	Charlotte
Reid, Wm. K.	Charlotte
*Reitzel, C. E.	High Point
*Reynolds, C. V.	Asheville
Reynolds, T. F.	Canton
Rhodes, J. S.	Williamston
Rhyne, R. E. O.	Mount Holly
Rich, J. C.	Candler
Richardson, W. J.	Greensboro
Ricks, L. E.	Fairmont
Riddick, I. G.	Raleigh
Rieves, J. T.	Greensboro
Riggsbee, A. E.	Morrisville
*Ring, J. W.	Elkin
Ringer, P. H.	Asheville
Roberson, Chas.	Greensboro
*Roberson, Foy	Durham

Name	*Address*
Roberson, G. B	Greensboro
Roberson, Mike	Durham
Roberts, F	Marshall
Roberts, H. C	Coats
Robertson, J. F	Wilmington
*Robertson, W. B	Tarboro
Robinson, Frank	Lowell
Robinson, W. F	Mars Hill
Robinson, W. J	Creston
Rodwell, J. W	Mocksville
Rogers, J. R	Raleigh
*Rogers, W. D., Jr	Warrenton
*Root, A. S	Raleigh
Rose, A. H	Smithfield
*Ross, G. H	Durham
*Ross, O. B	Charlotte
Ross, R. D	Wadesboro
Rosser, R. G	Rock Fish
Rowe, H. B	Mount Airy
Rowe, H. E	Newton
Rowe, R. H	Bessemer City
*Royal, B. F	Morehead City
*Royall, M. A	Elkin
*Royster, H. A	Raleigh
Royster, S. S	Shelby
Royster, W. I. (Hon.)	Raleigh
*Rozier, R. G	Lumberton
Rucker, A. A	Rutherfordton
*Ruff, F. R	Duke
*Russell, E. R	Asheville
Russell, J. M	Canton
Russell, S. L	Yadkinville
*Saine, J. W	Lincolnton
Saliba, John	Elizabeth City
Saliba, M. M	Wilson
Salley, E. McQ	Saluda
Salmons, H. C	Jonesville
Sanderford, R. F	Raleigh
Saunders, Sheldon A	Aulander
Sawyer, C. J	Windsor
Sawyer, W. W	Elizabeth City
Schallert, P. O	Winston-Salem
Schaub, O. P	Winston-Salem
Schenck, D. R	Rutherfordton
Schonwald, J. T. (Hon.)	Wilmington
Schoonover, R. A	Greensboro
Scott, C. L	Sanford
Scott, R. C	Asheville
Scruggs, W. H	Asheville
Sessoms, E. T	Cooper
*Sevier, D. E	Asheville
*Sevier, J. T	Asheville
*Sexton, C. H	Dunn
Shamburger, J. B	Star
*Sharp, C. R	Lexington
Sharpe, F. L	Statesville
*Shaw, W. G	Laurinburg
*Shellum, O. W	Lawndale
Shepard, F. A	Liberty
*Shields, H. B	Carthage
*Shore, C. A	Raleigh
*Shore, T. W	Boonville
Shull, J. R	Cliffside
*Sidbury, J. B	Wilmington
Sigman, F. G	Spencer
*Sikes, G. L	Salemburg
*Sikes, G. T. (Hon.)	Grissom
Siler, F. L	Franklin
Simmons, J. O	Charlotte
Singletary, G. C	Clarkton
*Sink, C. S	North Wilkesboro
Skinner, L. C	Greenville
Slate, W. C	Spencer
Sloan, H. L	Roanoke, Va.
Sloan, J. M	Gastonia
Slocum, R. B	Wilmington
Sloop, E. H	Crossnore
Smith, A. T	Greensboro
Smith, B. B	Bridgeton
Smith, B. R	Asheville
Smith, G. A	Black Creek
*Smith, G. M	Monroe
Smith, J. A	Lexington
*Smith, J. B	Pilot Mountain
*Smith, J. McN	Rowland
Smith, J. T	Westfield
*Smith, L. J	Wilson
Smith, Owen	High Point
Smith, R. A. (Hon.)	Goldsboro
Smith, O. F.	Scotland Neck
Smith, R. W	Hertford
Smith, W. F	Chadbourn
Smith, W. H	Goldsboro
Smithwick, J. E	Jamesville
Smoot, A. O	Denim
Smoot, J. E	Concord
Smoot, M. L	Fayetteville
Snipes, E. P	Jonesboro
Somers, L. P	Osbornville

Name	*Address*
Sorrell, L. P.	Raleigh, R.F.D. 6
*Sossaman, J. C.	Midland
Spainhour, E. H.	Winston-Salem
Speight, J. A.	Rocky Mount
Speight, J. P.	Rocky Mount
Speight, J. W.	Roper
Speight, R. H., Sr. (Hon.)	Whitakers, R.F.D.
Spencer, F. B.	Salisbury
*Spencer, W. O.	Winston-Salem
Spicer, John	Goldsboro
Spicer, Richard	Goldsboro
*Spruill, J. L.	Columbia
Staley, S. W.	Rocky Mount
Stamps, T.	Lumber Bridge
Stancell, W. W.	Raleigh
Stanley, J. H.	Four Oaks
*Stanton, D. A.	High Point
Stanton, T. M.	High Point
Starr, H. F.	Greensboro
Steele, W. C.	Mount Olive
Stephens, W. L.	Indian Town
Stephenson, M. R.	Seaboard
Sterrett, J. R.	West Durham
Stevens, M. L.	Asheville
Stevens, R. S.	Raleigh
*Stevens, S. A.	Monroe
Stewart, J. T.	Summerfield, R.F.D.
Stockard, J. K.	Greensboro
Stockton, W. I.	Swansboro
Stokes, J. E.	Salisbury
*Stone, W. M.	Dobson
Storie, J. G.	Proctor
*Street, M. E.	Glendon
Strickland, E. F.	Bethania
Strickland, E. L.	Wilson
Strickland, J. T.	Nashville
Strickland, W. J.	Moncure
Stringfield, S. L.	Waynesville
Stringfield, T.	Waynesville
*Strong, C. M.	Charlotte
Strong, W. M.	Charlotte
*Strosnider, C. F.	Goldsboro
Sturgis, Margaret	Lenoir
Sturgis, S. B.	Lenoir
Summerell, E. M. (Hon.)	China Grove
Summerell, G. H.	Ayden
Summers, C. L.	Baltimore, Md.
Sumner, T. W.	Fletcher
Sumner, W. I.	Randleman
Surles, J. B.	Four Oaks
Sutton, C. W.	Richlands
Sutton, W. G.	Seven Springs
Swann, J. F.	Semora
*Sweeney, John	West Durham
Swett, W. P.	Southern Pines
Swindell, C. L.	Wilson
*Tankersley, J. W.	Wilmington
*Tate, C. S.	Ramseur
Tate, W. C.	Banner Elk
*Tayloe, D. T. (Hon.)	Washington
Taylor, F. R.	High Point
Taylor, F. V.	Stanley
*Taylor, I. M. (Hon.)	Morganton
*Taylor, J. T.	Madison
Taylor, Thos. G.	Leaksville
Taylor, W. I.	Burgaw
Taylor, W. L.	Stovall
Taylor, W. S.	Mount Airy
Teague, R. J.	Roxboro
Templeton, J. M.	Cary
Tennent, G. S.	Asheville
Terry, J. R.	Lexington
Terry, P. R.	Asheville
Testerman, J. C.	Jefferson
Thigpen, F. L.	Bethel
Thigpen, W. J.	Tarboro
Thomas, G. G. (Hon.)	Wilmington
Thomas, W. N.	Oxford
Thompson, A. F.	Troy
*Thompson, C. D.	Lincolnton
*Thompson, Cyrus	Jacksonville
Thompson, Fred	Pinebluff
Thompson, H. A.	Raleigh
Thompson, J. B.	Bostic
Thompson, Joseph	Creedmore
*Thompson, N. A.	Lumberton
Thompson, S. R.	Charlotte
Thompson, S. W.	Neuse
Thompson, S. W., Jr.	Sanatorium
Thompson, W. A.	Rutherfordton
Tidwell, J. E.	Andrews
Tilson, J. C.	Marshall
Timberlake, R. E.	Youngsville
Toole, A. F.	Asheville
Townsend, M. L.	Charlotte
Trantham, H. T. (Hon.)	Salisbury
Troxler, R. M.	Burlington
Tucker, F. P.	Milton

Name	*Address*
Tucker, J. H.	Charlotte
Tugman, B. W.	Warrensville
Tull, Henry (Hon.)	Kinston
*Turner, H. G.	Raleigh
Turner, J. M.	North Wilkesboro
Turner, J. P.	Greensboro
*Tuttle, A. F.	Spray
*Tuttle, R. G.	Walnut Cove
Twitty, J. C.	Rutherfordton
Tydeman, F. W. L.	Woodriver, Ill.
Tyner, Carl V.	Lumberton
Tyson, T. D.	Pleasant Garden
Underhill, H. P.	Wendell
Underwood, O. E.	Roseboro
Upchurch, R. T.	Henderson
Utley, H. H.	Benson
Valk, A. deT.	Winston-Salem
*Van Poole, C. M. (Hon.)	Salisbury
Vaughn, J. C.	Rich Square
Vestal, Willis J.	Lexington
Vick, G. D.	Selma
Von Ruck, Karl	Asheville
Wadsworth, W. H.	Concord
Wakefield, H. A.	Charlotte
Wakefield, Wm. H.	Charlotte
*Walker, H. D.	Elizabeth City
Walker, J. B.	Gibsonville
Walker, L. A.	Burlington
Walker, L. D.	Charlotte
Walker, L. K.	Ahoskie
Walker, W. E.	Burlington
Wall, R. L.	Winston-Salem
Walters, C. M.	Burlington
*Ward, I. A.	Belvidere
Ward, J. E.	Robersonville
Ward, V. A.	Robersonville
*Ward, W. H. (Hon.)	Plymouth
Warlick, E. S.	Morganton
*Warren, A. J.	Salisbury
Warren, J. W.	Edenton
*Warren, R. F.	Prospect Hill
Warren, R. L.	Dunn
Warren, W. E.	Williamston
*Washburn, B. E.	Raleigh
Watkins, F. B.	Morganton
Watkins, G. S.	Oxford
Watson, J. B.	Raleigh
Watson, Leon	Broadway
Watson, Walter	New Bern
*Way, J. H. (Hon.)	Waynesville
Weaver, H. B. (Hon.)	Asheville
Weaver, W. J.	Asheville
Webb, B. G.	Andrews
Webb, S. E.	Draper
Webb, W. P.	Cordova
Wellborn, W. R.	Elkin
Wessell, J. C.	Wilmington
West, G. H.	Fairmont
*West, L. N.	Raleigh
West, R. M.	Salisbury
West, T. M.	Fayetteville
Weyher, V. E.	Kinston
*Wharton, L. D.	Smithfield
Whelpley, F. L.	Goldsboro
Whichard, M. P.	Edenton
Whisnant, A. M.	Charlotte
Whitaker, A. C.	Julian
Whitaker, F. A.	Kinston
Whitaker, F. C.	Enfield
*Whitaker, F. S.	Kinston
Whitaker, R. A. (Hon.)	Kinston
White, J. W. (Hon.)	Wilkesboro
White, W. M.	Lenoir
Whitehead, J. P.	Rocky Mount
Whitehead, John (Hon.)	Salisbury
Whitfield, W. C. (Hon.)	Grifton
Whitley, A. D. N.	Unionville
Whitley, A. W.	Matthews
Whitley, D. P.	Albemarle
Whittington, J. B.	Winston-Salem
Whittington, W. P. (Hon.)	Asheville
*Whittington, W. W.	Snow Hill
*Wickliffe, T. F.	Kinston
*Wiggins, J. C.	Winston-Salem
Wilkerson, C. B.	Apex
Wilkerson, T. E.	Raleigh
Wilkins, J. W.	Mount Olive
*Wilkins, R. B.	Raeford
*Wilkins, S. A.	Dallas
Williams, A. F.	Wilson
Williams, B. B.	Greensboro
Williams, C. B.	Elizabeth City
Williams, J. A.	Greensboro
Williams, J. D.	Guilford Station
Williams, John H. (Hon.)	Asheville
*Williams, J. M.	Warsaw
Williams, J. R.	Asheville

Name	*Address*
*Williams, R. C.	Wallace
Willis, A. P.	Candler
Willis, B. C.	Rocky Mount
Wilmerding, W. E.	Selma
Wilson, A. R. (Hon.)	Greensboro
*Wilson, F. G.	Gastonia
Wilson, G. M.	Elm City
Wilson, H.	New Thacker, W. Va.
Wilson, N. G.	Summerfield
*Wilson, R. B.	Newton Grove
*Wilson, W. P.	Madison
Windley, R. E.	Swan Quarter
Wingate, G. C.	Charlotte
Winstead, J. A.	Nashville
Wise, J. S.	Lincolnton
Wiseman, C. B.	Henrietta
Wishart, W. E.	Charlotte
Withers, G. L.	Davidson
Withers, J. J.	Davidson
*Witherspoon, B. J.	Charlotte
Woltz, J. L.	Mount Airy
Wood, J. W.	Shelby, R.F.D. 3
Woodard, G. B.	Kenly
Woodson, C. W.	Salisbury
Wright, John B.	Raleigh
Wright, T. H.	Charlotte
Yarborough, R. F.	Raleigh
Yokeley, R. V.	Lexington
York, A. A.	Linwood, R.F.D.
York, H. B.	Williamston
York, N. D.	Mebane
Young, J. J.	Clayton
Young, L. B.	Rolesville
Yow, Ira A.	Georgeville
Zimmerman, R. U.,	Lexington, R.F.D. 4
Zollicoffer, A. R.	Weldon

ROSTER OF MEMBERS FOR 1919

BY COUNTIES

NOTE.—Every physician in the State whose name we could secure has had an opportunity to supply correct information as to his name, postoffice, academic and medical education, date of State license, and date State Society was joined. A few did not take advantage of the opportunity, however. Any one finding an error should report it to the secretary of the society.

ALAMANCE COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President	....	....
Secretary	....	....
Anderson, Charles Alexander, Burlington	1893	1896
P. and S. Balt., 1901		
Caddell, S. W., Elon College	....	1914
Univ. of Tenn., 1892		
Faucett, T. S., Burlington	1893	1916
Balt. M. C., 1892		
Freeman, Richard Allen, (Hon.), Burlington	1879	1891
Goley, Wm. R., Graham	1885	1893
P. and S. Balt., 1885		
McPherson, C. W., Burlington	1910	1912
Univ. of Md., 1910		
McPherson, R. G., Saxapahaw	1908	1909
Univ. of N. C., 1908		
Moser, W. D., Burlington	1910	....
Univ. of N. C., 1910		
Parker, John Rainey, Burlington	1901	1917
Univ. Coll. of Med., Richmond, 1901		
Pickett, John A., Burlington, R. F. D.	1894	1904
Univ. of Nashville, 1894		
Troxler, R. M., Burlington	1914	1915
Univ. of Md., 1914		
Walker, L. A., Burlington	1899	1904
Univ. Coll. of Med., Va., 1898		
Walker, Walter Erwin, Burlington	1903	1903
Med. Coll. of Va., 1903		
Walters, Charles Manley, Burlington	1908	1909
Univ. of Md. and Coll. of P. and S., Balt., 1908		
York, N. D., Mebane	....	1885
Louisville Med. Coll., 1878		

ALEXANDER COUNTY SOCIETY

(SEE IREDELL-ALEXANDER)

ALLEGHANY COUNTY SOCIETY

(No members in good standing)

ANSON COUNTY SOCIETY

President	....	....
Secretary	....	....
Kerr, James Edwin, Lilesville	1898	1898
Univ. of Md., 1897		
Meisenheimer, T. F., (Hon.), Morven	....	1882
Ross, Robert D., Wadesboro	1890	1912
N. Y. Univ., 1890		

ASHE COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, Thomas J. Jones, Lansing	....	1885
Lincoln Memorial Univ., Knoxville, 1895		
Secretary, J. C. Testerman, Jefferson	....	1904
Blevins, Manley, Beaver Creek	1885	1916
Coll. of P. and S., Balt., Md.		
Brooks, H. M., Dandy	....	1919
Jones, T. L., Lansing	1909	1917
Med. Coll. of Va.		
Perkins, S. L., Jefferson	1892	1918
Balt. Med. Coll., 1891		
Robinson, W. J., Creston	1907	1917
Univ. Med. Coll. of Kansas City, 1904		
Tugman, B. W., Warrensville	....	1917

AVERY COUNTY SOCIETY

President, W. C. Tate, Banner Elk	1909	1912
Tenn. Med. Coll., 1908		
Secretary, M. T. Long, Newland	1916	1917
Med. Coll. of Va., N. C. Med. Coll., 1916		
Burleson, W. B., Plumtree	1915	1915
Univ. of Md., and Coll. of P. and S., 1915		
Hodges, Joseph M., Cranberry	1906	1914
Univ. of Md., 1904		
Proffitt, Thomas J., Elk Park	1903	1914
Louisville Med. Coll., 1902		
Sloop, Eustace H., Crossnore	1905	1909
N. C. Med. Coll., 1905; Jeff. Med. Coll., 1908		

BEAUFORT COUNTY SOCIETY

President, J. L. Nicholson, Washington	1880	1905
Univ. of N. Y., 1875		
Secretary, H. W. Carter, Washington	1895	1910
Univ. of Va., 1895		
Blount, J. G., Washington	1892	1893
Bellevue Hosp. Med. Coll., 1892		
Bullock, W. J., Belhaven	....	1860
Univ. of Va., 1857; Univ. of Pa., 1858		
Jackson, C. C., Yeatesville	1893	1896
P. and S., Balt., 1893		
Kafer, Oswald O., Edward	1905	1916
Univ. of Md., 1905		
Nicholson, P. A. Washington	1889	1890
P. and S., Balt., 1889		
Nicholson, Sam T., (Hon.), Washington	1885	1885
P. and S., Balt., 1881		
Potter, W. T., Aurora	1910	1910
Med. Coll. of Va., 1910		
Tayloe, David Thomas, Washington, (Hon.)	1885	1885
Bellevue Med. Coll., 1885		

BERTIE COUNTY SOCIETY

President, L. B. Evans, Windsor	1900	1907
Univ. Coll. of Med., Va., 1900		
Secretary, S. A. Saunders, Aulander	1914	1918
Jeff. Med. Coll., 1914		
Garris, Frank H., Lewiston	1912	1918
Jeff. Med. Coll., 1912		

Name and Address	*Licensed*	*Joined State Society*
Pritchard, John L., Windsor	1906	1907
P. and S. Balt., 1906		
Sawyer, C. J., Windsor	1895	1897
P. and S., Balt., 1895		

BLADEN COUNTY SOCIETY

President, S. S. Hutchison, Bladenboro	1911	1917
N. C. Med. Coll., Charlotte, 1900		
Secretary, E. S. Clark, Clarkton	1914	1915
Med. Coll. of Va., 1914		
Bullard, G. F., Elizabethtown	1915	1916
N. C. Med. Coll., 1915		
Clark, Geo. L., (Hon.), Clarkton	1900	1904
Univ. of N. Y., 1876		
Cromartie, R. S., Garland	....	1915
DeVane, J. D., East Arcadia	....	1919
Lucas, W. H. G., White Oak	1885	1904
Univ. of Phila., 1870		
Norman, J. S., Bladenboro	1911	1913
Univ. of Md.; Coll. of P. and S., Balt., 1909		
Singletary, G. C., Clarkton	1917	1918
Univ. of Tenn., 1917		

BRUNSWICK COUNTY SOCIETY

President	....	....
Secretary	....	....
Brown, F. L., Southport	....	1919
Goodman, Erastus G., Lanvale	1891	1892
Univ. of Md., 1891		

BUNCOMBE COUNTY SOCIETY

President, C. DeW. Colby, Asheville	1909	1912
Army Med. School, 1895; Univ. of Mich., 1893		
Secretary, John W. Huston, Asheville	1912	1913
Rush, Chicago, 1904		
Adams, J. L., Asheville	1910	1913
Jeff. Med. Coll., 1910		
Ambler, Charles P., Asheville	1890	1891
West. Reserve Univ., 1889		
Anderson, James G., Asheville	1906	1910
Univ. of N. C., 1906		
Andrews, C. R., Asheville	1917	1918
Atlanta P. and S., 1903		
Archer, Isaac J., Black Mountain	1905	1907
Northwestern, 1896		
Baker, W. E., Arden	1915	1916
Chattanooga Med. Coll., 1908		
Battle, George C., Asheville	1912	1912
Univ. of Md., 1912		
Battle, S. W. (Hon.), Asheville	1887	1887
Bellevue Med. Coll., N. Y., 1875		
Beall, Louis G., Asheville	1906	1912
N. C. Med. Coll., 1906; Univ. of Pa., 1911		
Bisch, Louis C., Asheville	....	1919
Bown, Herbert H., Asheville	1917	1918
Columbus, O., Med. Coll., 1892		
Brigg, Henry H., Asheville	1901	1903
Yale Univ. Sch. of Med., 1897		

Name and Address	*Licensed*	*Joined State Society*
Brookshire, Harley G., Leicester, R. F. D. 5	1905	1907
N. C. Med. Coll., 1905		
Brownson, Wm. C., Asheville	1885	1885
Univ. of N. Y., 1878		
Buckner, J. M., Swannanoa	1909	1912
Univ. of N. C., 1908		
Buckner, Rufus G., Asheville	1907	1909
Univ. of Ark., 1897		
Calloway, Arthur W., Asheville	1899	1904
Chicago Med. School; Harvard Med. School, 1895		
Cheesborough, Thomas P., Asheville	1891	1900
Univ. of N. Y., 1891		
Clemenger, Francis J., Asheville	1903	1904
Univ. of Denver, Med. Dept. 1902		
Cocke, C. H., Asheville	1902	1908
Cornell Univ., 1905		
Cocke, E. R., Asheville	1914	1917
Jeff. Med. Coll., 1913		
Cocke, Jere E., Asheville	1905	1907
Louisville Med. Coll., 1905		
Costello, M. J., Asheville	1909	1911
Medico-Chirurgical, Phila., 1896		
Cotten, Clyde E., Asheville	1901	1901
Northwestern, 1889		
Crawford, J. M., Asheville	1915	1916
Atlanta, Med. Coll., 1884		
Denchfield, A. L., Asheville	1914	1916
Univ. and Belle. H., N. Y., 1905		
Dunn, Wm. L., Asheville	1900	1900
Univ. of Mich., 1891		
Eckel, O. F., Asheville	1907	1909
Med. Coll. of S. C., 1906		
Elias, Lewis W., Asheville	1906	1907
Columbia University, 1903		
Flack, Roswell E., Asheville	1913	1914
Johns Hopkins University, 1913		
Fletcher, Marshall H. (Hon.), Asheville	1881	1882
Bellevue Med. Coll., 1881		
Frazer, H. Thompson, Asheville	1908	1909
Coll. Phys., N. Y., 1901		
Fresh, Wm. M., Weaverville	1913	1919
Medico-Chirurgical Coll., Phila., 1906		
Gardner, Garrett D., Asheville	1908	1909
Lincoln Mem., 1908		
Glenn, Eug. B., Asheville	1896	1900
Jeff. Med. Coll., 1896		
Grantham, Wm. L., Asheville	1906	1911
N. C. Med. Coll., 1906		
Green, Joseph B., Asheville	1910	1911
Univ. of Va., 1893		
Griffin, W. R., Asheville	1910	1917
Jeff. Med. Coll., Phila., 1910		
Griffith, F. W., Asheville	1911	1912
Johns Hopkins, 1906		
Griffith, L. M., Asheville	1916	1917
Johns Hopkins Med. School, 1916		
Harris, Isaac A., (Hon.), Alexander, R. F. D. 2	1885	1904
Jeff. Med. Coll., Phila.		
Herbert, William P., Asheville	1910	1911
Univ. of Va., 1907		

Name and Address	*Licensed*	*Joined State Society*
Hollyday, W. M., Asheville Univ. of Md., 1908	1914	1915
Hunnicutt, William J., Asheville Univ. of Tenn., 1895	1908	1909
Johnson, Alice E., Asheville Woman's Med. Coll., Pa., 1905	1906	1907
Jordan, Charles S., Asheville Univ. of N. Y., 1899	1891	1899
Knoefel, A. E., Black Mountain Univ. of Louisville, 1893	1914	1916
Lord, Marjorie J., Asheville Univ. of Mich., 1916	....	1918
Lynch, James M., Asheville Univ. of Md., 1904	1912	1913
McCracken, C. M., Fairview N. C. Med. Coll., 1896	1896	1904
Mallett, E. P., Asheville L. I. Coll. Hosp., Brooklyn, 1889	1914	1914
Meriwether, Benjamin M., Asheville Univ. of Louisville, Ky., 1915	1915	1916
Minor, Charles L., Asheville Univ. of Va., 1888	1895	1898
Morris, E. R., Asheville Louisville Med. Coll., 1896	1896	1899
Orr, Charles C., Asheville Univ. of Md., 1904	1904	1905
Orr, Peter B., Asheville Jeff. Med. Coll., 1901	1901	1904
Parker, H. P., Candler Univ. of Colo., 1906	1915	1918
Pritchard, Arthur T., Asheville Jeff. Med. Coll., Phila., 1905	1905	1907
Purefoy, Geo. W. (Hon.), Asheville Jeff. Med. Coll., Phila., 1876	1884	1884
Reeves, A. F., Asheville Geo. Washington Univ., 1906	1909	1910
Reynolds, C. V., Asheville Univ. of N. Y., 1895	1895	1896
Rich, John C., Candler Univ. of Nashville, 1908	1908	1913
Ringer, Paul H., Asheville P. and S., New York, 1904	1906	1907
Russell, E. Reid, Asheville Univ. of Md., 1895	1895	1910
Scott, R. C., Asheville Jeff. Med. Coll., 1902	1916	1919
Scruggs, W. H., Asheville Univ. of Md., 1913	1915	1917
Sevier, D. E., Asheville Jeff. Med. Coll., Phila., 1895	1895	1899
Sevier, J. T., Asheville Jeff. Med. Coll., Phila., 1895	1895	1899
Smith, B. R., Asheville Jeff. Med. Coll., Phila., 1911	1913	1914
Stevens, M. L., Asheville Balt. Med. Coll., 1891	1892	1893
Tennent, G. S., Asheville N. C. Med. Coll., 1894	1894	1898
Terry, P. R., Asheville Geo. Washington Univ., 1906	1912	1913

Name and Address	*Licensed*	*Joined State Society*
Toole, A. F., Asheville	1917	1918
Univ. of Va., 1900		
Von Ruck, Karl, Asheville	1889	1891
Univ. of Tubingen, 1878		
Weaver, Henry B. (Hon.), Asheville	1881	1882
Washington Univ., Balt., 1872		
Weaver, W. J., Asheville	1897	1915
Jeff. Med. Coll., Phila., 1898		
Whittington, Willard P. (Hon., Asheville	1882	1882
P. and S., Balt., 1882		
Williams, John H. (Hon.), Asheville	1881	1882
Med. Dept., Iowa S. Univ., 1863		
Williams, J. Roy., Asheville	1904	1917
Univ. of Mich., 1903		
Willis, A. P., Candler	1904	1919
Univ. of N. C., 1904		

BURKE COUNTY SOCIETY

President	....	....
Secretary	....	....
Gayle, Edward M., Richmond, Va.	1902	1902
Univ. of Va., 1902		
Griffin, N. W., Morganton	....	1919
Kibler, W. H., Morganton	1914	1918
Univ. of Pa., 1914		
Taylor, Isaac M. (Hon.), Morganton	1883	1883
P. and S., N. Y., 1882		
Warlick, E. S., Morganton	1881	1904
Vanderbilt Univ., 1881		
Watkins, Finso B., Morganton	1907	1910
Jeff. Med. Coll., Phila., 1907		

CABARRUS COUNTY SOCIETY

President, S. W. Rankin, Concord	1912	1914
Jeff. Med. Coll., 1912		
Secretary, John Franklin Reid, Concord	1909	1912
Univ. of N. Y., 1893		
Brandon, W. R., Kannapolis	1914	1916
Univ. of Md., 1914		
Bunn, J. J., Mt. Pleasant	1913	1915
N. C. Med. Coll., 1912		
Burleyson, L. N., Concord	1891	1906
Univ. of Md., 1891		
Caldwell, Daniel G. (Hon.), Concord	1885	1885
Univ. of Md., 1885		
Flowe, J. W., Kannapolis	1903	1905
N. C. Med. Coll., 1898		
Flowe, R. Frank, Kannapolis	1914	1915
N. C. Med. Coll., 1913		
Foil, M. A., Mt. Pleasant	1891	1905
Jeff. Med. Coll., 1891		
Gouger, Geo. J., Concord	1891	1899
Univ. of Md., 1891		
King, Richard M., Concord	1903	1907
Jeff. Med. Coll., Phila., 1903		
McFadyen, Paul R., Concord	1901	1904
Med. Coll. of Va., 1901		
Patterson, John A., Concord	1911	1912
Univ. Coll. of Va., 1911		

Name and Address	*Licensed*	*Joined State Society*
Pemberton, Wm. D. (Hon.), Concord	1887	1887
Univ. of Md., 1887		
Pharr, Theo. Franklin (Hon.), Concord	1881	1882
Bellevue Med. Coll., 1877		
Smoot, J. E., Concord	1894	1902
Balt. Med. Coll., 1893		
Sossaman, J. C., Midland	1917	1918
N. C. Med. Coll., 1915		
Wadsworth, Wm. H., Concord	1913	1913
Jeff. Med. Coll., 1911		
Yow, Ira A., Georgeville	1907	1910
N. C. Med. Coll., 1906		

CALDWELL COUNTY SOCIETY

President	....	....
Secretary	....	....
Carter, Geo. Hill, Kings Creek, R. F. D.	1899	1904
Univ. of N. Y., 1877		
Coffey, Lawrence H., Lenoir	1906	1913
Med. Coll. of Va., 1906		
Goodman, A. B., Lenoir	1897	1910
N. C. Med. Coll., 1898		
Hickman, M. I., Hudson	....	1910
Houck, Albert, Lenoir	1891	1893
P. and S., Balt., 1884		
Kent, Alfred A., Lenoir	1885	1894
Jeff. Med. Coll., Phila., 1885		
McNairy, Caroline, Lenoir	....	1919
Pitts, W. I., Lenoir	1911	1913
Univ. of the South, Sewanee, 1903		
Storie, J. G., Proctor	1898	1908
Tenn. Med. Coll., 1898		
Sturgis, L. B., Lenoir	....	1918
Sturgis, Margaret, Lenoir	1915	1918
Woman's Med. Coll. of Pa., 1915		
White, W. M., Lenoir	1899	1905
Atlanta Coll. P. and S., 1899		

CAMDEN COUNTY SOCIETY

(See Pasquotank—Camden—Dare.)

CARTERET COUNTY SOCIETY

President	....	....
Secretary, K. P. B. Bonner, Morehead City	1905	1904
Med. Coll. of Va., 1905		
Ball, M. W., Newport	1911	1913
Atlanta School of Med., 1909		
Davis, J. J., Beaufort	1891	1916
Univ. of Md., 1891		
Loftin, P. B., Beaufort	....	1918
Maxwell, C. S., Beaufort	1899	1904
Univ. of the South, 1900		
Reed, D. H., Morehead City	1904	1917
George Washington Univ., 1901		
Royal, Ben. F., Morehead City	1909	1909
Jeff. Med. Coll., 1909		

CASWELL COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President	....	....
Secretary, S. A. Malloy, Yanceyville	1898	1903
Ky. School of Med., 1897		
Tucker, F. P., Milton	1885	1919
P. and S., Balt., 1882		
Warren, R. F., Prospect Hill	1911	1919
Atlanta School of Med., 1911		

CATAWBA COUNTY SOCIETY

President	....	....
Secretary	....	....
Campbell, J. R., Newton	1885	1898
Univ. of Md., 1876		
Flowers, G. E., Hickory	....	1915
Long, F. L., Catawba	1898	1898
Long, Glenn, Catawba	1912	1915
N. C. Med. Coll., 1912		
Rowe, H. E., Newton	1905	1917
N. C. Med. Coll., 1905		

CHATHAM COUNTY SOCIETY

President	....	....
Secretary	....	....
Burns, W. M. Goldston	1885	1905
P. and S., Balt., 1878		
Denson, H. A., Bennett	1913	1913
Coll. P. and S., Indianapolis, Ind., 1887		
Edwards, J. D., Siler City	....	1894
Louisville Med. Coll., Louisville, 1887		
McManus, W. L., Bonlee	1912	1913
Atlanta School of Med., 1906		
Milliken, J. S., Moncure	1915	1916
Jeff. Med. Coll., Phila., 1915		
Palmer, R. W., Gulf	1891	1891
Louisville Med. Coll., 1890		
Strickland, W. J., Moncure	1890	1907
Univ. of Md., 1890		

CHEROKEE COUNTY SOCIETY

President, Benj. G. Webb, Andrews	1885	1885
Louisville Med. Coll., 1885		
Secretary, W. C. Morrow, Andrews	1909	1909
Atlanta School of Med., 1907		
Herbert, Fred Lee, Andrews	1912	1912
Lincoln Med. Univ., Knoxville, 1904		
Hill, J. N., Murphy	1909	1909
Univ. of Louisville, 1909		
Orr, C. V., Andrews	1909	1912
Atlanta School of Med., 1909		
Tidwell, J. E., Andrews	1914	1915
Chattanooga Med. Coll., 1903		

CHOWAN COUNTY SOCIETY

President	....	....
Secretary	....	....
Cason, H. M. S., Edenton	1899	1899
Univ. of Md., 1899		

Name and Address	*Licensed*	*Joined State Society*
Dillard, Richard, Jr. (Hon.), Edenton	1880	1880
Jeff. Med. Coll., 1879		
McMillan, J. D. (Hon.), Edenton	....	....
Mitchener, J. S., Edenton	1917	1918
Johns Hopkins Univ., 1915		
Warren, John W., Edenton	1907	1911
Univ. Coll. of Med., 1907		
Whichard, M. P., Edenton	1910	1918
Univ. of Md., 1910		

CLAY COUNTY SOCIETY

(See Macon-Clay)

CLEVELAND COUNTY SOCIETY

President, B. H. Palmer, Shelby	1898	1904
Louisville Med. Coll., 1896		
Secretary, E. B. Lattimore, Shelby	1896	1904
Bellevue Med. Coll., 1897		
Aydlette, Joseph P., Earl	1903	1903
Ky. Univ., 1901		
Champion, C. O., Mooresboro	1902	1898
Atlanta Med. Coll., 1887		
Ellis, R. C., Shelby	....	1891
Balt. Med. School, 1886		
Gibbs, E. W., Mooresboro	1907	1918
Univ. of N. C., 1907		
Grigg, W. T., Lawndale	1904	1906
Emory Univ. School of Med., Atlanta, 1891		
Hamrick, T. G., Shelby	1904	1904
P. and S., Balt., 1895		
Houser, Emmanuel Alvin, Fallston	1904	1904
Hunt, J. F., Casar	1900	1912
Univ. of Tenn., 1900		
Lee, Lawrence Victor, Lattimore	1897	1904
Atlanta School of Med., 1894		
McBrayer, T. E., Shelby	1885	1900
P. and S., Balt., 1879		
Mitchell, W. F., Shelby	1900	1904
Univ. of Md., 1890		
Oates, George, Grover	1894	1904
Univ. of Louisville, 1871		
Royster, S. S., Shelby	1896	1904
Tenn. Med. Coll., 1890		
Shellum, O. W., Lawndale	1909	1913
N. C. Med. Coll., 1909		
Wood, J. W., Shelby, R. F. D. No. 3	1903	1900
Louisville Med. Coll., 1892		

COLUMBUS COUNTY SOCIETY

President, A. G. Floyd, Fair Bluff	1885	19044
Univ. of Md., 1885		
Secretary, G. S. Cox, Tabor	1911	1914
N. C. Med. Coll., Charlotte, 1911		
Baggett, Leaman, Tabor	1907	1909
N. C. Med. Coll., 1907		
Crowell, W. H., Whiteville	1895	1908
Univ. of Md., 1895		

Name and Address	*Licensed*	*Joined State Society*
Moore, Tilon V., Acme	1901	1911
Balt. Med. Coll., 1901		
Smith, Wm. Franklin, Chadbourn	1904	1905
N. C. Med. Coll., 1904		

CRAVEN COUNTY SOCIETY

President	....	....
Secretary	....	....
Caton, G. A., New Bern	1898	1904
Med. Coll. of Va., 1898		
Duffy, B. M., New Bern	....	1919
Duffy, Francis, (Hon.), New Bern	....	1900
Gibbs, N. M., New Bern	1895	1907
Univ. of Md. and P. and S., Balt., 1896		
Hughes, Francis W., (Hon.), New Bern	1885	1885
Univ. of Pa., 1880		
Smith, B. B., Bridgeton	....	1919
Vanderbilt Univ.		
Watson, Walter, New Bern	1900	1911
Univ. of Pa., 1910		

CUMBERLAND COUNTY SOCIETY

President	....	....
Secretary, R. A. Allgood, Fayetteville	1916	1917
Univ. of Maryland and Coll. of P. and S., 1912		
Averitt, Kirby Gladstone, Cedar Creek	1893	1902
Balt. Med. Coll., 1893		
Bullock, Thomas C., Autryville	1885	1905
P. and S., Balt., 1885		
Highsmith, J. F., Fayetteville	1889	1893
Jefferson Med. Coll., Phila., 1889		
Highsmith, Seavy, Fayetteville	1901	1902
Univ. Med. Coll. of Va., 1901		
Jordon, William S., Fayetteville	1906	1907
Univ. of N. C. Med. Dept., 1906		
Lilly, James M., Fayetteville	1903	1904
Univ. Coll. of Med., Va., 1903		
McGougan, J. V., Fayetteville	1893	1909
Univ. of Maryland and Coll. of P. and S., Balt., 1893		
McKethan, D. G., Fayetteville	1899	1899
Univ. Coll. of Med., Va., 1899		
McKethan, John Alex., Fayetteville	1901	1903
N. C. Med. Coll., 1901		
McNeill, J. W., (Hon.), Fayetteville	1876	1876
Bellevue Med. Coll., 1876		
Olive, Perry W., Wade	1907	1909
P. and S., Balt., 1907		
Pittman, R. L., Fayetteville	1910	1912
Univ. of Maryland, 1906		
Smoot, Morris L., Fayetteville	1903	1904
Univ. Coll. of Med., Va., 1903		
West, T. M., Fayetteville	1910	1910
Univ. of Maryland, 1908		

CURRITUCK COUNTY SOCIETY

President, J. M. Newbern, Jarvisburg	1899	1900
Georgetown Univ., Washington, 1898		
Secretary, S. M. Mann, Moyock	1895	1904
P. and S., Balt., 1895		

Name and Address	*Licensed*	*Joined State Society*
Cowell, Will, Shawboro	1909	1911
Ky. School of Med., 1893		
Gatling, Oscar C., Knotts Island	1910	1918
Univ. of Md., 1910		
Griggs, W. T., Poplar Branch	1896	1901
Univ. of Va., 1906		

DARE COUNTY SOCIETY

(See Pasquotank—Camden—Dare.)

DAVIDSON COUNTY SOCIETY

President, E. J. Buchanan, Lexington	1892	1900
Univ. of Md., 1892		
Secretary, E. F. Long, Lexington	1909	1912
Med. Coll. of Va., 1909		
Anderson, Abel, Denton	....	1904
Bowers, M. A., Thomasville	1911	1914
Tulane Univ., 1911		
Clodfelter, C. M., Lexington	1905	1907
P. and S., Balt., 1905		
Hill, David Joseph, Lexington	1893	1894
P. and S., Balt., 1893		
Hill, W. Lee, Lexington, R. F. D. No. 4	1893	1904
P. and S., Balt., 1893		
Hobgood, J. E., Thomasville	1907	1917
Jeff. Med. Coll., Phila., 1907		
Julian, Charles A., Thomasville	1891	1893
Louisville Med. Coll., 1888		
Mock, Frank Lowe, Lexington, R. F. D. No. 3	1908	1911
N. C. Med. Coll., Charlotte, 1908		
Peacock, James Walter, Thomasville	1901	1905
Tulane Univ., La., 1901		
Phillips, C. C., Wallburg	1912	1917
N. C. Med. Coll., Charlotte, 1912		
Sharpe, C. R., Lexington	1914	1917
Jeff. Med. Coll., Phila., 1914		
Smith, J. A., Lexington	1915	1917
N. C. Med. Coll., Charlotte, 1915		
Terry, J. R., Lexington	1912	1912
Univ. of Louisville, 1911		
Vestal, Willis Jasper, Lexington	1885	1893
P. and S., Balt., 1883		
Yokeley, Raymond V., Lexington, R. F. D. No. 1	1911	1912
N. C. Med. Coll., 1911		
York, Alexander Arthur, Linwood, R. F. D. No. 2	1907	1909
Chattanooga Med. Coll., 1907		
Zimmerman, Robert U., Lexington, R. F. D. No. 4	1901	1904
N. C. Med. Coll., Charlotte, 1901		

DAVIE COUNTY SOCIETY

President	....	....
Secretary, C. R. Nicholson, Harmony	1912	1916
N. C. Med. Coll., 1912		
Byerly, Andrew B., Cooleemee	1896	1904
Univ. Coll. of Med., Va., 1896		
Martin, Wilson C., Mocksville	1888	1904
P. and S., Balt., 1888		
Rodwell, John W., Mocksville	1895	1896
P. and S., Balt., 1895		

DUPLIN COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, John W. Carroll, Wallace	1903	1903
Univ. of Md., 1903		
Secretary, R. C. Williams, Wallace	1915	1916
Univ. of Md., 1912		
Carr, Ransom Lee, Rose Hill	1908	1909
Balt. Med. Coll., 1907		
Crocker, Wm. D., Warsaw	1896	1904
Louisville Med. Coll., 1897		
Farrior, J. W., Warsaw	1913	1917
Univ. of Pa., 1912		
Landen, Jefferson F., Chinquapin	1905	1907
Univ. Coll. of Med., Va., 1905		
Maxwell, J. F., Pink Hill	....	1917
Quinn, Robert F., Magnolia	1913	1916
N. C. Med. Coll., 1912		
Williams, James Marcus, Warsaw	1902	1902
Univ. of Md., 1902		

DURHAM-ORANGE COUNTY SOCIETY

President	....	....
Secretary, M. T. Adkins, Durham	1915	1916
Johns Hopkins, 1907		
Adams, Claud A., Durham	1892	1901
P. and S., Balt., 1892		
Bitting, Numa Duncan, Durham	1907	1909
Jeff. Med. Coll., 1907		
Boddie, Needham P., (Hon.), Durham	1883	1883
P. and S., Balt., 1883		
Booker, Lyle Steele, Durham	1910	1911
Univ. Coll. of Med., Va., 1908		
Boone, W. H., Durham	1902	1910
N. C. Med. Coll., 1902		
Bowling, Edwin Holt, Durham	1890	1908
P. and S., Balt., 1891		
Boyles, Augustus C., Bahama	1887	1912
Univ. of Md., 1887		
Cheatham, Archibald, Durham	1888	1888
Univ. of Md., 1888		
Fassett, Burton W., Durham	1899	1909
Balt. Med. Coll., 1898		
Felts, Robert L., Durham	1901	1909
Univ. of Md., 1898		
Graham, Joseph, Durham	1902	1906
Univ. of Pa., 1902		
Hicks, Calvin S., Durham	1904	1904
Univ. of Md., 1904		
Hicks, William N., (Hon.), Durham	1879	1879
Med. Coll. of Va., 1864		
Hill, Christopher D., Durham	1912	1912
Univ. of Va., 1888		
Holloway, Robert Lee, West Durham	1893	1901
Med. Coll. of Va., 1893		
Holloway, O. W., North Side	1901	1917
Med. Coll. of Va., 1901		
Johnson, Norman M., (Hon.), Durham	1879	1879
P. and S., Balt., 1877		
Jordan, Archibald C., East Durham	1895	1904
P. and S., Balt., 1881		

Name and Address	*Licensed*	*Joined State Society*
Lloyd, B. B., Chapel Hill	1909	1914
Univ. of N. C., 1909		
Long, W. H., Durham	....	1919
MacNider, William DeBerniere, Chapel Hill	1902	1903
Univ. of N. C., 1902		
Manning, I. H., Chapel Hill	1899	1901
Long Island Coll. Hosp., Brooklyn, 1897		
Manning, John Moore, Durham	1897	1901
Bellevue Med. Coll., 1897		
McPherson, S. D., Durham	1903	1912
Univ. of Md., 1903		
Nichols, Rhodes E., Durham	1890	1904
Va. Med. Coll., Richmond		
Olive, William Wade, Durham	1907	1909
Univ. of Md., 1906		
Roberson, Foy, Durham	1909	1912
Jeff. Med. Coll., 1909		
Robertson, Mike, Durham	1912	1913
Med. Coll. of Va., 1912		
Ross, George H., Durham	1904	1904
Univ. of Tenn., 1899		
Sterrett, J. R., West Durham	1913	1916
Univ. Coll. of Med., Va., 1908		
Sweeney, John, West Durham	1888	1916
P. and S., Balt., 18[illegible]		
Wilson, Hugh, New Thacker, W. Va.	....	1919

EDGECOMBE COUNTY SOCIETY

President	....	....
Secretary	....	....
Baker, J. M., (Hon.), Tarboro	1879	1879
Univ. of Maryland, 1879		
Bass, Spencer P., Tarboro	1907	1909
Univ. of Va., 1906		
Harrell, Samuel N., Tarboro	1897	1904
Univ. of Md., 1897		
Robertson, William B., Tarboro	1908	1908
Balt. Med. Coll., 1898		
Speight, R. H., Sr., (Hon.), Whitakers, R. F. D.	1875	1875
Univ. of Md., 1870		
Thigpen, William J., Tarboro	1900	1901
Jeff. Med. Coll., Phila., 1900		

FORSYTH COUNTY SOCIETY

President, A. deT. Valk, Winston-Salem	1913	1914
Johns Hopkins Med. School, 1910		
Secretary, W. L. Grimes, Winston-Salem	1910	1915
Johns Hopkins Med. School, 1910,		
Belton, J. F., Winston-Salem	1914	1916
Univ. of Pa., 1914		
Bulla, A. C., Winston-Salem	1915	1918
N. C. Med. Coll., Charlotte, 1915		
Bynum, John, Winston-Salem	1892	1896
Univ. of New York, 1892		
Bynum, Wade H., Germanton	1900	1900
Univ. Coll. of Med., Va., 1900		
Carlton, Romulus L., Winston-Salem	1906	1908
Univ. of Md., 1906		

Name and Address	*Licensed*	*Joined State Society*
Dalton, David N., Winston-Salem Univ. of New York, 1881	1885	1885
Dalton, William N., Winston-Salem N. C. Med. Coll., 1904	1904	1905
Dowdy, J. Ernest, Winston-Salem Univ. of Md., 1909	1909	1910
Edwards, Albert D., Winston-Salem Univ. of Md., 1903	1904	1905
Fearington, Joseph Peyton, Winston-Salem Univ. of Md., 1887	1887	1904
Flynt, S. S., Rural Hall P. and S., Balt., 1889	1890	1907
Gray, Eugene Price, Winston-Salem Johns Hopkins Med. School, 1906	1907	1909
Hammock, J. C., Walkertown P. and S., Balt., 1895	1895	1908
Hege, J. Roy, Clemmons Univ. of N. C.; Univ. of Md., 1916	1916	1917
Izlar, H. L., Winston-Salem Med. Coll. of N. C., 1915	1916	1916
Jewett, R. D., (Hon.), Winston-Salem Univ. of Va., 1888	1890	1890
Johnson, Wingate M., Winston-Salem Jeff. Med. Coll., 1908	1908	1911
Kapp, Henry Herman, Winston-Salem Jeff. Med. Coll., Phila., 1901	1901	1904
Keiger, O. R. Winston-Salem Univ. Coll. of Med., Richmond, Va., 1911	1911	1917
Linville, Aaron Y., Winston-Salem Univ. of New York, 1889	1889	1896
Long, Vann McKee, Winston-Salem N. C. Med. Coll., 1906	1906	1911
Mimms, C. W., Winston-Salem Vanderbilt Univ.; Univ. of Louisville, Ky., 1914	1916	1917
Paddison, John R., Jr., Kernersville Univ. of Md., 1902	1902	1913
Pepper, John Kerr, Winston-Salem P. and S., Balt., 1907	1908	1908
Perkins, J. R., Winston-Salem Med. Coll. of Va., 1904	1904	1917
Pfohl, Samuel F., Winston-Salem Univ. of Pa., 1894	1898	1898
Schallert, P. O., Winston-Salem Univ. of Ill., Med. Dept., 1904	1904	1904
Schaub, O. P., Winston-Salem Balt. Med. Coll., 1898	1898	1914
Spainhour, Ellis H., Winston-Salem Balt. Med. Coll., 1898	1898	1898
Spencer, William O., Winston-Salem Jeff. Med. Coll., Phila., 1891	1891	1894
Strickland, Edward F., Bethania Univ. of New York, 1887	1887	1893
Summers, Charles L., Baltimore, Md. Univ. of Md., and Coll. of P. and S., 1887	1892	1896
Wall, R. L., Winston-Salem Jeff. Med. Coll., Phila., 1906	1907	1914
Whittington, James B., Winston-Salem N. C. Med. Coll., 1911	1911	1913
Wiggins, John C., Winston-Salem Univ. of Pa. School of Med., Phila., 1910	1910	1912

FRANKLIN COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, H. G. Perry, Louisburg Coll. of P. and S., Balt., 1915	1915	1916
Secretary, S. P. Burt, Louisburg Coll. P. and S., Balt., 1896	1896	1904
Beam, H. M., Woods Columbia Univ., New York, 1918	1918	1919
Harris, John H., Franklinton Bellevue Med. Coll., 1886	1886	1904
Henderson, Richard B., Franklinton Univ. of Md., 1887	1887	1904
Johnson, B. C., Bunn Univ. of N. C., 1909	1910	1910
Johnson, Henry H., Louisburg Coll. P. and S., Balt., 1915	....	1919
Malone, James E., Louisburg Bellevue Med. Coll., 1875	1885	1904
Newell, H. Albert, Louisburg P. and S., Balt., 1906	1906	1907
Newell, J. O., Louisburg P. and S., Balt., 1910	1910	1912
Timberlake, Richard E., Youngsville Jefferson Coll., 1908	1908	1910

GASTON COUNTY SOCIETY

President, C. J. McCombs, Gastonia N. C. Med. Coll., 1905	1905	1908
Secretary, Charles H. Pugh, Gastonia N. C. Med. Coll., 1910	1910	1913
Adams, Charles E., Gastonia Univ. of Md., 1878	1885	1904
Anders, McG., Gastonia Med. Coll. of Va., 1901	1902	1904
Anderson, James A., Gastonia Univ. of Georgia, 1899	1909	1909
Davis, William W., Belmont Ky. School of Med., 1885	1885	1904
Eddleman, Hall M., Gastonia Ky. School of Med., 1886	1886	1904
Garrison, D. A., Gastonia Louisville Med. Coll., 1896	1896	1900
Glenn, Henry F., Gastonia P. and S., Atlanta, 1900	1900	1904
Glenn, Lucius N., Gastonia Univ. of Md., 1897	1897	1904
Hall, Price B., Belmont Univ. of N. C., 1903	1903	1911
Hood, John Sidney B., Kings Mountain Jeff. Med. Coll., 1907	1907	1910
Houser, W. H., Cherryville N. C. Med. Coll., 1900	1900	1919
Jenkins, John H., Gastonia Ky. School of Med., Louisville, 1887	1888	1904
McAdams, C. R., Belmont N. C. Med. Coll., 1912	1912	1916
McCoy, Thomas Marshall, Mt. Holly N. C. Med. Coll., 1905	1906	1910
Miller, R. C., Mayworth N. C. Med. Coll., 1909	1918	1919

Name and Address	*Licensed*	*Joined State Society*
Patrick, L. N., Gastonia Univ. of Md., 1910	1910	1913
Quickel, Thomas C., Gastonia Tulane Univ., 1900	1899	1904
Reid, James W., Lowell Jeff. Med. Coll., Phila., 1909	1909	1910
Rhyne, Robert Edgar, Gastonia N. C. Med. Coll., 1907	1907	1908
Robinson, Frank, Lowell N. C. Med. Coll., 1878	1878	1904
Rowe, Robert H., Bessemer City Univ. of Louisville, 1912	1912	1913
Sloan, James M., Gastonia Louisville Med. Coll., 1891	1891	1904
Wilkins, Samuel A., Dallas Univ. of Ky., 1902	1903	1903
Wilson, Frank G., Gastonia Univ. of Md., 1896	1896	1899

GATES COUNTY SOCIETY

President	....	....
Secretary	....	....
Blanchard, T. W., Hobbsville Med. Coll. of Va., 1911	1911	1919

GRAHAM COUNTY SOCIETY

(No members in good standing.)

GRANVILLE COUNTY SOCIETY

President, Jos. A. Morris, Oxford, R. F. D. 2 Vanderbilt Univ., 1890	1893	1899
Secretary, W. B. Bullock, Oxford Bellevue Med. Coll., 1892	1892	1893
Booth, T. L., Oxford Med. Coll. of S. C., 1883	1885	1893
Booth, S. D., (Hon.), Oxford Med. Coll. of Va., 1867	1885	1885
Cannady, Sam H., Oxford Univ. of Va., 1887	1895	1904
Daniel, N. C., Oxford N. C. Med. Coll., 1895	1895	1902
Hardee, Parrott R., Stem P. and S., Balt., 1885	1885	1906
Hays, Benjamin K., Oxford Univ. Coll. of Med., Va., 1894	1894	1897
Meadows, Elijah B., Oxford, R. F. D. 3 Univ. Coll. of Med., Va., 1901	1901	1901
Sikes, G. T., (Hon.), Grissom Univ. of Md., 1883	1884	1884
Taylor, Wm. L., Stovall Univ. of Va., 1900	1900	1901
Thomas, Wm. N., Oxford Med. Coll. of Va., 1911	1911	1914
Thompson, Joseph, Creedmoor Ky. Univ., Louisville, 1904	1908	1912
Watkins, Geo. S., Oxford Univ. Coll. of Med., Va., 1900	1900	1908

GREENE COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, Wm. B. Murphy, Snow Hill Univ. Coll. of Med., Va., 1903	1903	1905
Secretary, G. C. Edwards, (Hon.), Hookerton Bellevue Med. Coll., 1883	1883	1883
Carroll, John L., Hookerton Louisville Med. Coll., 1905	1905	1909
Harper, James H., Snow Hill Jeff. Med. Coll., Phila., 1906	1906	1907
Whittington, Wm. W., Snow Hill Louisville Med. Coll., 1895	1895	1902

GUILFORD COUNTY SOCIETY

President, John T. J. Battle, (Hon.), Greensboro P. and S., Balt., 1884	1884	1890
Secretary, R. A. Schoonover, Greensboro Univ. of Md., 1905	1906	1912
Ashworth, W. C., Greensboro P. and S., Balt., 1892	1892	1904
Austin, J. W., High Point Jeff. Med. Coll., Phila., 1910	1910	1913
Aydlette, H. T., Greensboro Univ. of Va., 1894	1895	1907
Banner, Chas. W., Greensboro Univ. of Md., 1899	1899	1901
Beall, Wm. P., (Hon.), Greensboro Jeff. Med. Coll., 1879	1879	1879
Bowman, Harlan P., Greensboro Univ. of Tenn., 1894	1894	1905
Boyles, Jos. Henry, Greensboro P. and S., Balt., 1903	1903	1904
Braddy, Wade Hampton, Graham Univ. of N. C., 1909	1909	1913
Burrus, John T., High Point Balt. Med. Coll., 1901	1898	1898
Coe, Samuel S., High Point Univ. Coll. of Med., Va., 1911	1912	1913
Cole, Walter F., Greensboro Johns Hopkins, 1909	1909	1910
Davis, Wm. C., Summerfield Univ. of Md., 1896	1889	1904
Dees, Ralph Erastus, Greensboro Univ. of Md., 1906	1908	1908
Dees, Rigdon O., Greensboro Univ. of Md., 1906	1906	1908
Dick, Julius Vance, Gibsonville Univ. of N. C., 1907	1907	1908
Dodson, Henry H., (Hon), Greensboro Med. Coll. of Va., 1882	1885	1887
Flagge, Phillip W., Brown Summit Washington Univ., St. Louis, 1902	1919	1919
Fortune, Alex F., Greensboro Univ. Coll. of Med., Va., 1900	1900	1904
Fox, Millard Fillmore, (Hon.), Guilford College P. and S., Balt., 1881	1885	1885
Gilmer, Charles S., Greensboro, R. F. D. 6 Univ. of N. Y., 1891	1891	1894

Name and Address	*Licensed*	*Joined State Society*
Gordon, James R., Jamestown	1891	1894
Univ. of New York, 1891		
Gove, Anna M., Greensboro	1894	1896
Woman's Med. Coll., N. Y., 1892		
Grayson, C. S., High Point	1907	1908
George Washington Univ., 1906		
Harrison, Edmund, Greensboro	1900	1900
Univ. of Md., 1896		
Hiatt, H. B., High Point	1907	1910
Univ. of Md., 1907		
Hilton, Julius J., Greensboro	1889	1904
Univ. of Md., 1886		
Holt, Wm. T., McLeansville	1890	1896
Univ. of Tenn., 1890		
Hyatt, Fred Carlyle, Greensboro	1907	1912
Jeff. Med. Coll., Phila., 1907		
Jackson, Walter Leo, High Point	1912	1913
N. C. Med. Coll., 1912		
Jarboe, Parron, Greensboro	1906	1907
Georgetown University, 1905		
Jones, Wm. M., Jr., Greensboro	1903	1903
Univ. of Md., 1903		
Knight, Wm. P., Greensboro	1898	1898
Balt. Med. Coll., 1898		
Long, John Wesley, (Hon.), Greensboro	1884	1884
Vanderbilt Univ., 1884		
McAnally, Wm. J., High Point	1896	1899
Balt. Med. Coll., 1897		
McCain, Hugh W., High Point	1909	1911
Univ. of Md., 1909		
Mann, I. T., High Point	1912	1915
Jeff. Med. Coll., Phila., 1912		
Meadows, Washington J., Greensboro	1889	1904
Med. Coll. of Alabama, 1894		
Michaux, Edward R., Greensboro	1889	1904
Univ. of N. Y., 1889		
Miles, May S., Greensboro	1904	1905
Laura Memorial Women's Coll. of Med., Cinn., Ohio, 1898		
Moore, Charles E., Greensboro	1909	1910
Jeff. Med. Coll., Phila., 1907		
Mosely, Chas. W., Greensboro	1893	1896
Balt. Med. Coll., 1893		
Norman, Geo. W., Pomona	1896	1904
Balt. Med. Coll., 1896		
Ogburn, H. H., Greensboro	1913	1914
Johns Hopkins Univ., 1913		
Pate, F. J., Greensboro	1908	1915
Univ. of Md. and Coll. of P. and S., Balt., 1908		
Reaves, Charles R., Greensboro	1914	1914
University of the South, 1906		
Reaves, Wm. P., Greensboro	1905	1907
University of the South, 1903		
Reitzel, Claude E., High Point	1902	1902
P. and S., Atlanta, 1902		
Richardson, Wm. J., Greensboro	1899	1904
Jeff. Med. Coll., Phila., 1869		
Rieves, J. T., Greensboro	1891	1893
Louisville Med. Coll., 1891		
Roberson, Charles, Greensboro	1897	1901
Long Island Coll. Hosp., 1897		

Name and Address	*Licensed*	*Joined State Society*
Roberson, Geo. B., Greensboro	1915	1917
Med. Coll. of S. C., 1915		
Simmonds, L. L., Greensboro	1919	1919
Univ. of Tenn., 1893; Vanderbilt Univ., 1899; Tulane, 1917		
Smith, Alick T., Greensboro	1910	1913
Med. Coll. of Va., 1908		
Smith, Owen, High Point	1905	1917
Jeff. Med. Coll., Phila., 1904		
Spoon, A. O., Denim	1908	1910
N. C. Med. Coll., 1908		
Stanton, David A., High Point	1887	1891
Vanderbilt Univ., 1887		
Stanton, T. M., High Point	1916	1917
Univ. of Va., 1916		
Starr, H. F., Greensboro	1916	1917
Jeff. Med. Coll., 1916		
Stockard, J. K., Greensboro	....	1919
Taylor, F. R., High Point	1913	1915
Univ. of Pa., 1913		
Turner, J. P., Greensboro	1897	1904
Univ. of Md., 1896		
Tyson, T. D., Mebane	1899	1904
Univ. Coll. of Va., 1899		
Walker, J. B., Gibsonville	1914	1916
Med. Coll. of Va., 1914		
Whitaker, Asa C., Julian	1903	1908
Univ. of Tenn., 1903		
Williams, B. B., Greensboro	1886	1893
Univ. of Md., 1886		
Williams, John A., Greensboro	1898	1898
Univ. of Va., 1898		
Williams, John D., Guilford Station	1898	1898
Vanderbilt Univ., 1898		
Wilson, A. R., (Hon.), Greensboro	1882	1882
Jeff. Med. Coll., Phila., 1882		
Wilson, Newton G., Summerfield	1914	1915
N. C. Med. Coll., 1915		
Woodruff, Fred G., High Point	1919	1919
Med. Coll. of Va., 1917		

HALIFAX COUNTY SOCIETY

President	....	....
Secretary	....	....
Harrison, Aristides S., Enfield	1888	1890
Univ. of Md., 1888		
Kitchin, T. D., Scotland Neck	1908	1916
Jeff. Med. Coll., Phila., 1908		
Leggett, Kenelm, (Hon.), Hobgood	1885	1885
Ky. School of Med., 1884		
Picot, Louis J., (Hon.), Littleton	1875	1875
Jeff. Med. Coll., 1875		
Pierce, S. B., Weldon	1897	1906
Bellevue Hosp., 1897		
Smith, O. F., Scotland Neck	1899	1904
Univ. Coll. of Med., Va., 1899		
Whitaker, F. C., Enfield	1911	1919
Maryland Med. Coll., 1911		
Zollicoffer, Augustus R., Weldon	1885	1890
Univ. of Pa., 1875		

HARNETT COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, M. L. Barefoot, Dunn, R. F. D.	1911	1912
Univ. of Md., 1911		
Secretary, I. F. Hicks, Dunn	1902	1904
N. C. Med. Coll., 1902		
Halford, Joseph W., Lillington	1905	1905
Columbia Univ., 1904		
Highsmith, Charles, Dunn	1898	1898
Balt. Med. Coll., 1898		
Holt, Wm. P., Duke	1895	1901
Jeff. Med. Coll., Phila., 1895		
Hudson, Wm. L., (Hon.), Dunn	....	1883
Lee, Sanders P. J., Dunn, R. F. D. 2	1904	1905
Md. Med. Coll., Balt.		
McKay, John A., (Hon.), Buies Creek	....	....
McKay, Joseph F., Buies Creek	1885	1904
S. C. Med. Coll., 1884		
McLean, John W., Godwin	1902	1906
N. C. Med. Coll., 1902		
Melvin, Wayman C., Linden	1900	1905
Univ. Coll. of Med., Va., 1900		
Roberts, H. C., Coats	1912	1913
Tulane Univ., 1912		
Ruff, F. R., Duke	1915	1916
Univ. Coll. of Med., Va., 1913		
Sexton, C. H., Dunn	1890	1904
Univ. of Md., 1890		
Warren, Robert Lee, Dunn	1911	1912
Tulane Univ., 1911		

HAYWOOD COUNTY SOCIETY

President	....	....
Secretary	....	....
Abel, J. F., Waynesville	1893	1899
Univ. of Balt., 1892		
Allen, Rufus L., Waynesville	1885	1889
Univ. of Maryland, 1885		
Johnson, W. C., Canton	1912	1917
Tulane Univ. of Louisana, 1912		
McCracken, John R., Waynesville	1902	1904
N. C. Med. Coll., Charlotte, 1902		
Reynolds, Thomas F., Canton	1904	1904
N. C. Med. Coll., 1904		
Russell, J. M., Canton	1911	1912
Univ. of Nashville, 1911		
Stringfield, Samuel L., Sunburst	1905	1907
Jeff. Med. Coll., Phila., 1905		
Stringfield, Thomas, Waynesville	1898	1899
Vanderbilt Univ., 1898		
Way, J. Howell, (Hon.), Waynesville	1885	1887
Vanderbilt Univ., 1886		

HENDERSON-POLK COUNTY SOCIETY

President, J. S. Brown, Hendersonville	1894	1895
Northwestern Univ., 1893		
Secretary, B. F. Cliff, Hendersonville	1914	1915
George Washington Univ., 1908		

Name and Address	*Licensed*	*Joined State Society*
Dixon, Guy E., Hendersonville P. and S., St. Louis, 1903	1903	1903
Drafts, Andrew B., Hendersonville Univ. of Va., 1896	1899	1903
Edgerton, James L., Hendersonville Univ. of Md., 1877	1885	1890
Grady, William E., Tryon Univ. of Md. and Coll. of P. and S., Balt., 1894	1895	1899
Greenwood, Solomon E., Fletcher Tenn. Med. Coll., 1902	1903	1904
Howe, Wm. B. White, Jr., Hendersonville Med. Coll. of S. C., 1906	1907	1908
Kirk, W. R., Hendersonville Central Univ. of Ky., 1890	1901	1903
Morse, Lucius B., Hendersonville Chicago Homeopathic Coll., 1897	1901	1911
Palmer, M. C., Tryon Med. Coll. of S. C., 1910	1911	1914
Salley, E. McQueen, Saluda Univ. of Md., 1905	1905	1908
Sumner, Thomas W., Fletcher Jeff. Med. Coll., Phila., 1910	1910	1911

HERTFORD COUNTY SOCIETY

President, R. H. Gary, Murfreesboro Md. Coll. of Phys. and Sur., 1881	1885	1904
Secretary, W. B. Pollard, Winton Univ. of Pa., 1889	1903	1905
Burbage, Thomas I., Como Memphis Hosp. Med. Coll., 1883	1885	1890
Futrell, L. M., Murfreesboro Va. Med. Coll., 1914	1914	1918
Green, Arthur W., Ahoskie Univ. Coll. of Med., Richmond, 1904	1904	1908
Harrell, Geo. N., Murfreesboro Univ. Coll. of Med., Richmond, 1907	1907	1909
Mitchell, Paul H., Ahoskie Univ. Coll. of Med., Richmond, 1907	1907	1908
Mitchell, Jesse H., Ahoskie Univ. of Balt., 1879	1885	1904
Powell, Jesse A., Harrellsville Coll. of Phys. and Sur., Balt., 1907	1908	1909
Walker, L. K., Ahoskie Univ. of Md., 1911	1911	1917

HOKE COUNTY SOCIETY

President, Geo. W. Brown, Raeford Ky. School of Med., Louisville, 1898	1900	1900
Secretary, L. B. McBrayer, Sanatorium Univ. of Md. and Coll. of P. and S., Balt., 1891	1891	1899
Dickson, A. P., Raeford Univ. of N. Y., 1878	....	1904
Graham, George A., Raeford Univ. of New York, 1876	1885	1904
Juat, Francis, Raeford Univ. of Berne, 1886	1910	1910

Name and Address	*Licensed*	*Joined State Society*
McBrayer, Reuben, Sanatorium Univ. of Pa., 1916	1916	1917
McCain, P. P., Sanatorium Univ. of Md. and Col. of P. and S., Balt., 1911	1914	1917
Rosser, R. G., Rockfish N. C. Med. Coll., Charlotte, 1909	1909	1917
Thompson, S. W., Jr., Sanatorium Med. Coll. of Va., Richmond, 1913	1915	1917
Wilkins, R. B., Raeford N. C. Med. Coll., 1915	1913	1915

HYDE COUNTY SOCIETY

President	....	....
Secretary	....	....
Harris, Arthur G., Fairfield University of the South, 1905	1907	1908
Windley, Richard E., Swan Quarter Univ. of Md., 1903	1904	1908

IREDELL-ALEXANDER COUNTY SOCIETY

President, A. E. Bell, Mooresville Univ. of Md. and Coll. of P. and S., 1897	1897	1904
Secretary, J. E. McLaughlin, Statesville Univ. of Md., 1886	1886	1900
Adams, Minor R., (Hon.), Statesville Univ. of Md., 1878	1884	1884
Anderson, Thos. E., (Hon.), Statesville Jeff. Med. Coll., Phila., 1878	1878	1879
Carpenter, Forest A., Statesville N. C. Med. Coll., 1906	1906	1906
Cloninger, L. V., Statesville N. C. Med. Coll., 1900	1900	1904
Gibson, L. O., Statesville N. C. Med. Coll., 1913	1913	1915
Gilmore, W. D., Mooresville Univ. of N. C., 1903	1903	1904
Long, Henry F., Statesville Univ. of Md., 1892	1892	1893
Little, E. E., Statesville, R. F. D. 6 N. C. Med. Coll., 1912	1912	1915
Sharpe, Frank L., Statesville Univ. of N. C., 1904	1904	1905

JACKSON COUNTY SOCIETY

President, Chas. Z. Candler, Sylva P. and S., Atlanta, 1901	1901	1904
Secretary, D. D. Hooper, Sylva Univ. Coll. of Med., Va., 1905	1905	1905
Bryson, E. J., Cullowhee Bennett, Chicago, Ill., 1913	1914	1915
Nichols, Alvin A., Sylva Univ. of Nashville, Med. Dept., Knoxville, 1898	1904	1904
Nichols, Asbury S., Sylva Lincoln Memorial Univ., Med. Dept., Knoxville, 1905.	1907	1913

JOHNSTON COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, Geo. E. Parker, Benson Coll. of P. and S., Balt., 1886	1888	1904
Secretary, J. F. Martin, Benson N. C. Med. Coll., 1905	1905	1918
Coleman, Geo. S., Kenly Med. Coll. of Va., 1907	1907	1909
Eason, Oscar, Princeton Univ. of N. C., 1910	1910	1911
Grady, Jas. C., Kenly P. and S., Balt., 1887	1887	1890
Griffin, J. A., (Hon.), Clayton P. and S., Balt., 1881	....	1890
Hinnant, Milford, Micro Univ. of Md., School of Med., Balt., 1912	1912	1913
Hocutt, Battle A., Clayton Univ. of N. C. School of Med., 1906	1906	1908
Hooks, Thel., Smithfield Med. Coll. of Va., 1901	1901	1903
McLemore, Geo. A., Clayton, R. F. D. Univ. of N. C., 1900	1906	1908
Mayerberg, I. W., Selma Jeff. Med. Coll., Phila., 1907	1907	1909
Muns, Leonard A., Smithfield Coll. of P. and S., Balt., 1888	1888	1906
Noble, R. J., (Hon.), Selma Ky. Med. School, 1875	1878	1878
Oliver, A. S., Benson Jeff. Med. Coll., 1914	1914	1919
Person, James B., Jr., Selma Med. Coll. of Balt., 1897	1897	1900
Rose, A. H., Smithfield Jeff. Med. Coll., 1906	1906	1907
Stanley, John H., Four Oaks Univ. of N. C., 1904	1904	1906
Surles, J. B., Four Oaks Jeff. Med. Coll., 1909	1909	1919
Utley, H. H., Benson Balt. Med. Coll., 1906	1906	1906
Vick, Geo. D., Selma Jeff. Med. Coll., Phila., 1906	1906	1907
Wharton, L. D., Smithfield Tulane University, 1893	1893	1894
Wilmerding, Wm. E., Selma University of the South, Sewanee, 1899	1915	1915
Woodard, G. B., Kenly Med. Coll. of Va., 1915	1915	1916
Young, J. J., Clayton P. and S., Balt., 1897	1896	1904

JONES COUNTY SOCIETY

(No members in good standing.)

LEE COUNTY SOCIETY

President, M. L. Matthews, Sanford Univ. of N. C., 1903	1903	1904
Secretary, Lynn McIver, Sanford Univ. of Ky., 1901	1902	1902
McIver, E. M., Jonesboro Univ. of N. C., 1908	1908	1911

Name and Address	*Licensed*	*Joined State Society*
Monroe, J. P., Sanford	1901	1905
P. and S., Balt., 1901		
Monroe, W. A., Sanford	1886	1890
Univ. of Md., 1886		
Scott, C. L., Sanford	1899	1916
Univ. of Md., 1897		
Snipes, E. P., Jonesboro	1890	1890
Vanderbilt Univ., 1890		
Watson, Leon, Broadway	1900	1904
N. C. Med. Coll., 1900		

LENOIR COUNTY SOCIETY

President	....	....
Secretary, George E. Kornegay, Kinston	1913	1915
Tulane Univ. of La., 1907		
Denny, William W., (Hon.), Pink Hill	....	....
Hardy, Ira M., Kinston	1902	1902
Med. Coll. of Va., 1901		
Hargrove, W. F., Kinston	1901	1900
Univ. of Md., 1901		
Hyatt, H. O., Kinston	....	1872
Univ. of Pa., 1868		
McNairy, C. B., Kinston	1893	1915
P. and S., Balt., 1893		
Parrott, Albert DeK., Kinston	1906	1908
Univ. Coll. of Med., Va., 1906		
Parrott, James M., Kinston	1895	1896
Tulane Univ., 1895		
Parrott, M. C., Kinston	1917	1919
Tulane Univ., 1917		
Monk, H. D., Trenton	1896	1904
Med. Coll. of Va., 1896		
Moseley, Zebulon V., Kinston	1913	1914
Univ. Coll. of Med., 1913		
Tull, Henry, (Hon.), Kinston	1876	1876
Weyher, V. E., Kinston	....	1919
Whitaker, Frederick A., Kinston	1871	1907
Univ. of Pa., 1875		
Whitaker, Frederick S., Kinston	1913	1914
Balt., Med. Coll., 1913		
Whitaker, Romulus A., (Hon.), Kinston	1885	1885
P. and S., Balt., 1885		
Wickliffe, T. F., Kinston	....	1919
Univ. of Pa., 1876		

LINCOLN COUNTY SOCIETY

President, J. S. Wise, Lincolnton	1899	1904
Ky. School of Med., 1890		
Secretary, R. E. Lee, Lincolnton	1896	1918
Univ. of Md., 1896		
Abernathy, Horace N., Denver	1894	1899
Louisville Med. Coll., 1894		
Crowell, Lester A., Lincolnton	1892	1898
Balt. Med. Coll., 1892		
Edwards, F. D., Cleveland Mills, R. F. D.	1916	1919
Elliott, W. F., Lincolnton	1916	1917
Medico-Chir. Coll. of Phila., 1916		
Gamble, John R., Lincolnton	1911	1912
Univ. of Nashville, Tenn., 1911		

Name and Address	*Licensed*	*Joined State Society*
Hoover, Charles H., Crouse	1903	1903
Balt. Med. Coll., 1903		
Jacocks, W. P., 61 Broadway, New York	....	1913
Killian, Robert B., Lincolnton, R. F. D.	1885	1904
Louisville Med. Coll., 1885		
Kizer, W. C., Reepsville	1889	1903
Southern Med. Coll., Ga., 1889		
Saine, J. W., Lincolnton	1891	1904
Louisville Med. Coll., 1891		
Sloan, H. L., Roanoke, Va.	1913	1914
Univ. of Pa., 1911		
Taylor, F. D., Stanley	1915	1919
N. C. Med. Coll., 1915		
Thompson, Claude D., Lincolnton	1901	1904
Univ. of Tenn., 1901		

MACON-CLAY COUNTY SOCIETY

President, Fred L. Siler, Franklin	1898	1903
Univ. of Nashville, 1897		
Secretary, Wiley A. Rogers, Franklin	1898	1898
Univ. of Nashville, 1898		
Fouts, J. H., Franklin	1895	1918
Vanderbilt Univ., 1895		
Horsley, H. T., Franklin	1915	1918
Balt. Med. Coll., 1907		
Killian, Paul B., Hayesville	1909	1909
Atlanta Coll. of Phys. and Sur., 1900		
Lyle, Samuel H., Franklin	1881	1882
Univ. of Nashville, 1883		

MADISON COUNTY SOCIETY

President, Willard F. Robinson, Mars Hill	1903	1904
Vanderbilt University, 1896		
Secretary, Frank Roberts, Marshall	1892	1902
Jeff. Coll., Phila., 1892		
Baird, John H., Marshall	1885	1885
Baird, John W., Mars Hill	1908	1909
Lincoln Mem. Univ., Knoxville, 1901		
Burnett, Isaac E., Big Laurel	1905	1904
Lincoln Mem. Univ., Knoxville, 1901		
Carter, J. E. T., Walnut	....	1919
English, I. L., Faust	1887	1904
Moore, Joseph N., Marshall	1905	1909
Univ. of N. C., 1905		
Packard, G. H., White Rock	1915	1915
P. and S., Balt., 1898		
Peck, Edward J., Hot Springs	....	1903
Vanderbilt Univ., 1879; Univ. of Tenn., 1880		
Tilson, Jacob Carson, Marshall	1885	1904
Lincoln Memorial Univ., 1885		

MARTIN COUNTY SOCIETY

President, Vernon A. Ward, Robersonville	1908	1914
Jeff. Med. Coll., Phila., 1908		
Secretary, William E. Warren, Williamston	1893	1904
Columbia Univ., N. Y.		
Hargrove, Robert H. (Hon.), Robersonville	1879	1879
Univ. of Md., 1877		

Name and Address	*Licensed*	*Joined State Society*
Knight, Josiah B. H., Williamston P. and S., Balt., 1885	1885	1890
Long, Benj. L., (Hon.), Hamilton Univ. of Md., 1881	1883	1885
Long, Edgar M., Oak City Univ. of Md., 1909	1909	1910
Nelson, Robert J., Robersonville Louisville Med. Coll., 1890	1890	1903
Rhodes, James S., Williamston Med. Coll. of Va., 1906	1906	1907
Smithwick, James E., Jamesville Med. Coll. of Va., 1897	1897	1904
Ward, Jesse E., Robersonville Univ. of Md., 1904	1904	1904
York, Hugh B., Williamston P. and S., Balt., 1906	1906	1907

McDOWELL COUNTY SOCIETY

President, G. B. Justice, Marion P. and S., Atlanta, 1906	1907	1909
Secretary, B. L. Ashworth, Marion P. and S., Balt., 1893	1893	1900
Johnson, J. B., Old Fort, R. F. D. 1 Univ. of Louisville, Med. Dept., 1905	1914	1914
Jonas, John F., Marion Balt. Med. Coll., 1903	1903	1903
Kirby, Guy S., Marion Univ. Coll. of Med., Va., 1897	1896	1903
Morphew, Frank M., Marion P. and S., Balt., 1883	1883	1893

MECKLENBURG COUNTY SOCIETY

President, Brodie C. Nalle, Charlotte Univ. of Va., 1903	1905	1905
Secretary, J. Lester Ransom, Charlotte N. C. Med. Coll., 1911	1911	1912
Alexander, Annie L., (Hon.), Charlotte Women's Med. Coll., Pa., 1884	1885	1900
Alexander, Janet, Charlotte	....	1918
Alexander, James R., Charlotte Univ. of Md., 1894	1894	1899
Allan, William, Charlotte P. and S., Balt., 1906	1906	1914
Ashe, J. R., Charlotte Columbia University, 1911	1915	1915
Austin, D. R., Charlotte Jeff. Med. Coll., 1917	1917	1918
Austin, Frederick De Costa, Charlotte N. C. Med. Coll., 1907	1907	1908
Austin, J. A., Charlotte Jeff. Med. Coll., Phila., 1882	1882	1904
Barrett, H. P., Charlotte Univ. of Louisville, 1908	1917	1919
Barron, A. A., Charlotte Vanderbilt Univ., 1909	1909	1910
Blalock, B. K., North Charlotte Univ. of Md., 1913	1913	1917

Name and Address	*Licensed*	*Joined State Society*
Boyette, E. C., Charlotte	1898	1906
Balt. Med. Coll., 1893		
Brenizer, A. G., Jr., Charlotte	1910	1911
Johns Hopkins and Univ. of Heidelberg, 1908		
Clifford, John S., Charlotte	1907	1908
Geo. Washington Univ., 1906		
Craven, Thomas, Charlotte	1917	1918
Jeff. Med. College, 1917		
Craven, William W., Huntersville	1904	1904
Univ. of Md., 1903		
Crowell, Andrew J., Charlotte	1892	1894
Univ. of Md., 1893		
Davidson, John E. S., Charlotte	1898	1898
Univ. of Md., 1894		
Donnelly, J., Charlotte	1905	1918
Univ. of N. C., 1905		
DeArmon, J. McC., (Hon.), Charlotte	1886	1887
Univ. of Md., 1886		
Faison, I. W., (Hon.), Charlotte	1878	1878
Bellevue Med. Coll., 1878		
Faison, Yates W., Charlotte	1910	1912
Harvard University, 1910		
Gallant, Robert M., Charlotte	1915	1916
N. C. Medical College, 1915		
Gibbon, R. L., (Hon.), Charlotte	1887	1888
Jefferson Med. Coll., 1888		
Graham, William A., Charlotte	1890	1890
P. and S., New York, 1888		
Hackett, L. E., Charlotte	....	1919
Hand, Edgar H., Pineville	1907	1913
N. C. Med. Coll., Charlotte, 1907		
Henderson, S. McD., Charlotte, R. F. D.	1894	1904
Univ. of Md., 1894		
Herring, W. C., Charlotte	....	1918
Univ. of New York, 1890		
Herron, Alex M., Charlotte	1884	1884
Med. Coll. of S. C., 1882		
Houser, O. J., Charlotte	1914	1916
N. C. Med. Coll., 1914		
Hovis, L. W., Charlotte	1904	1906
N. C. Med. Coll., 1904		
Hudson, C. C., Charlotte	1910	1918
Univ. Coll. of Med., Richmond, 1910		
Hunter, L. W., (Hon.), Sardis	1880	1880
Bellevue Hosp., N. Y., 1875		
Hunter, Myers, Charlotte	1906	1908
Georgetown Univ., 1905		
Hunter, M. C., Huntersville	1882	1918
Coll. of Phy. and Sur., Balt., 1882		
Irwin, John R., (Hon.), Charlotte	1882	1882
Univ. of Md., 1879		
Johnston, J. G., Charlotte	1913	1916
Med. Dept. Vanderbilt Univ., 1899		
Johnston, R. H., Wilson	....	1919
Univ. of Md., 1894		
Justice, Z. K., Davidson	1917	1919
N. C. Med. Coll., 1903		
Keiger, James A., Raleigh	1916	1919
Univ. of Va., 1916		

Name and Address	*Licensed*	*Joined State Society*
King, Parks M., Charlotte	1902	1904
Bellevue Med. Coll., 1902		
Lafferty, Robert H., Charlotte	1906	1908
N. C. Med. Coll., 1906		
Leinbach, Robert F., Charlotte	1907	1910
Univ. of Pa., 1907		
Linney, R. Z., Charlotte	1914	1918
Georgetown Univ., 1901		
Lubchenko, N. E., Newells	1915	1916
N. C. Med. Coll., Charlotte, 1915		
MacConnell, John W., Davidson	1908	1909
Univ. of Md., 1907		
McCoy, E. M., Huntersville	1894	1918
N. C. Med. Coll., 1894		
McKay, Hamilton W., Charlotte	1911	1913
Jeff. Med. Coll., 1910		
McLaughlin, Calvin S., Charlotte	1896	1903
Univ. of Md., 1896		
Martin, R. E., Charlotte	....	1919
Martin, W. J., Davidson	1891	1919
Univ. of Va., 1890		
Matheson, James P., Charlotte	1902	1907
N. C. Med. Coll., 1902		
Meisenheimer, Chas. A., (Hon.), Charlotte	1882	1882
N. Y. Univ. Med. Coll., 1882		
Mills, C. H. C., Charlotte	1900	1919
Univ. of Md., 1897		
Montgomery, John C., Charlotte	1891	1895
N. Y. Univ. Med. Coll., 1891		
Moore, Alexander W., Charlotte	1912	1913
Univ. of Va., 1901; Univ. of N. Y., 1902		
Moore, Oren, Charlotte	1911	1912
N. C. Med. Coll., 1911		
Moore, R. A., Charlotte	1911	1917
N. C. Med. Coll., Charlotte, 1911		
Munroe, J. P., (Hon.), Charlotte	1886	1890
Univ. of Va., 1885		
Myers, John Q., Charlotte	1904	1910
N. C. Med. Coll., 1904		
Newell, Leone B., Charlotte	1905	1908
Univ. of N. C., 1905		
Nisbet, Walter O., Charlotte	1889	1889
Med. Coll. of S. C., 1889		
Orr, W. L., Matthews	1914	1919
N. C. Med. Coll., 1914		
Parsons, W. H., Charlotte	1918	1919
N. C. Med. Coll., 1916		
Patterson, Reid, Charlotte, R. F. D.	1912	1913
N. C. Med. Coll., 1912		
Peeler, Clarence N., Charlotte	1906	1908
N. C. Med. Coll., 1906		
Petrie, Robert Wm., Charlotte	1903	1903
Univ. of Md., 1903		
Petteway, Geo. H., Charlotte, R. F. D.	1913	1914
N. C. Med. Coll., 1913		
Pharr, Wm. W., (Hon.), Charlotte	1883	1887
P. and S., Balt., 1882		
Phillips, J. J., Charlotte	1905	1907
Columbia Univ. P. and S., N. Y., 1894		

Name and Address	*Licensed*	*Joined State Society*
Pressley, Geo. W., Charlotte Jeff. Med. Coll., Phila., 1892	1895	1896
Query, Richard Z., Charlotte, R. F. D. Univ. Coll. of Med., Va., 1907	1907	1908
Register, Edwin C., (Hon.), Charlotte Univ. of New York, 1885	1887	1887
Reid, Thomas N., Matthews N. Y. Univ. Med. Coll., 1891	1891	1904
Reid, Wm. K., Charlotte Univ. of N. Y., 1891	1891	1896
Ross, Otho B., Charlotte Univ. of Pa., 1901	1901	1912
Simmons, John O., Charlotte Grant University, 1894	1906	1908
Strong, Charles M., Charlotte Univ. of Md., 1888	1898	1898
Strong, Wm. M., Charlotte N. C. Med. Coll., Charlotte, 1904	1904	1905
Thompson, S. R., Charlotte N. C. Med. Coll., 1914	1914	1915
Townsend, M. L., Charlotte Curtis-Physio. Med. Inst., Indiana, 1906	1912	1919
Tucker, John H., Charlotte Univ. of Va., 1899	1899	1911
Tydeman, F. W. L., Wood River, Ill. N. C. Med. Coll., Charlotte, 1912	1912	1918
Wakefield, Harry A., Charlotte N. C. Med. Coll., 1908	1908	1911
Wakefield, Wm. H., Charlotte Ky. Coll. of Med., 1890	1891	1893
Walker, L. D., Charlotte Med. Coll. of Va., Richmond, 1908	1917	1919
Whitley, A. W., Matthews, R. F. D. 19 Balt. Med. School, 1908	1908	1919
Whisnant, Albert M., Charlotte P. and S., Balt., 1893	1893	1899
Wingate, G. C., Charlotte N. C. Med. Coll., 1914	1915	1919
Wishart, Wm. E., Charlotte N. C. Med. Coll., 1911	1911	1911
Withers, G. L., Davidson N. C. Med. Coll., 1914	1914	1918
Withers, J. J., Davidson Jeff. Med. Coll., Phila., 1909	1909	1916
Witherspoon, B. J., Charlotte S. C. Med. Coll., 1894	1900	1911
Wright, Thomas H., Charlotte Univ. of Va., 1901	1904	1910

MITCHELL-WATAUGA COUNTY SOCIETY

President	....	....
Secretary	....	....
Butt, Virgil R., Bakersville Jeff. Med. Coll., 1886	....	1907
Harding, R. H., Boone	....	1919
Jones, J. Walter, Boone Chattanooga Med. Coll., 1900	1902	1919
Peterson, C. A., Spruce Pine N. C. Med. Coll., 1907	1907	1908

MONTGOMERY COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, C. B. Ingram, Mt. Gilead	1886	1902
Jeff. Med. Coll., Phila., 1886		
Secretary, H. B. Hoyle, Biscoe	1896	1915
N. C. Med. Coll., 1896		
Daligny, Charles, Troy	1885	1891
Military Med. School, Paris, 1878		
Rankin, P. R., Mt. Gilead	1910	1912
N. C. Med. Coll., 1910		
Shamburger, John B., Star	1890	1892
Univ. of Md., 1890		
Thompson, Alexander F., Troy	1895	1904
Med. Coll. of Indiana, 1895		

MOORE COUNTY SOCIETY

President, L. B. McBrayer, Sanatorium	1891	1899
Univ. of Md., and Coll. of P. and S., Balt., 1891		
Secretary, A. McNeil Blair, Southern Pines	1905	1906
Univ. of New York, 1897		
Achorn, John W., Pine Bluff	1899	1899
Med. School of Me., 1887; Bellevue Med. Coll., 1889		
Blue, A. McN., Carthage	1916	1917
Tulane University, 1915		
Bowman, H. E., Aberdeen	1904	1919
N. C. Med. Coll., 1904		
Davis, J. Franklin, Glendon	....	1906
Med. Coll. of Va.		
McDonald, Augustus A., Jackson Springs	1905	1912
N. C. Med. Coll., 1905		
McLeod, A. H., Aberdeen	1896	1904
Balt. Med. Coll., 1896		
McLeod, Gilbert M., Carthage	1885	1904
Univ. of Md., 1882		
McMillan, John M., Candor	1909	1911
Atlanta Coll. of P. and S., 1909		
Marr, M. W., Pinehurst	1907	1915
Tufts Coll. Med. School, Boston, 1907		
Mudgett, W. C., Southern Pines	1908	1911
Univ. of Md., 1903		
Shields, Henry B., Carthage	1887	1904
Atlanta Med. Coll., 1882		
Street, M. Eug., Glendon	1893	1902
P. and S., Balt., 1893		
Swett, William P., Southern Pines	1893	1901
Univ. of Vermont, 1876		
Thompson, Fred, Pine Bluff	1912	1914
Harvard University, 1888		

NASH COUNTY SOCIETY

President, Emile B. Quillen, Rocky Mount	1906	1914
Univ. of Md., 1904		
Secretary, H. Lee Large, Rocky Mount	....	1918
Med. Coll. of Va., 1917		
Battle, Ivan P., Rocky Mount	1889	1914
Univ. of Md., 1889		
Battle, James P., Nashville	1888	1904
Univ. of Md. and Coll. of P. and S., 1889		

Name and Address	*Licensed*	*Joined State Society*
Botts, G. W., Nashville	....	1919
Boice, E. S., Rocky Mount	1914	1915
Univ. of Pa., 1909		
Brantley, Hassell, Spring Hope	1888	1901
Jeff. Med. Coll., Phila., 1888		
Bray, T. L., Rocky Mount	1916	1919
Univ. of Md., 1916		
Coppedge, T. O., Nashville	1909	1917
Coll. of Phys. and Surg., Balt., 1908		
Fleming, M. I., Rocky Mount	....	1919
Hines, E. R., Rocky Mount	1916	1917
Med. Coll. of S. C., 1916		
Kornegay, Lemuel W., Rocky Mount	1906	1914
N. C. Med. Coll., 1906		
Lane, John L., Rocky Mount	1906	1914
N. C. Med. Coll., 1906		
Looney, J. J. W., Rocky Mount	....	1919
Marriott, Henry B., Battleboro	1883	1904
Mo. Med. Coll., St. Louis, 1883		
Matthews, Thomas A., Castalia	1891	1893
Univ. of Md., 1890		
Martin, J. H., Red Oak	1904	1916
Univ. of Nashville, 1903		
Perry, E. M., Rocky Mount	1909	1919
Coll. of Phys. and Surg., Md., 1907		
Putney, R. H., Elm City	1914	1916
Med. Coll. of Va., 1914		
Speight, J. A., Rocky Mount	1906	1916
Jeff. Med. Coll., Phila., 1906		
Speight, J. P., Rocky Mount	1906	1917
Jeff. Med. Coll., Phila., 1906		
Staley, S. Walter, Rocky Mount	1901	1914
Med. Coll. of State of S. C., 1901		
Strickland, J. T., Nashville	1890	1904
Univ. of Md., 1890		
Whitehead, J. P., Rocky Mount	1899	1914
Univ. of Md., 1899		
Willis, B. C., Rocky Mount	1915	1916
Med. Coll. of Va., 1909		
Winstead, J. A., Nashville	1916	1916
N. C. Med. Coll., 1914		

NEW HANOVER COUNTY SOCIETY

President, W. C. Galloway, (Hon.), Wilmington	1880	1880
Washington School of Med., 1874		
Secretary, A. B. Croom, Wilmington	1909	1916
Univ. of Md., 1905		
Bellamy, Robert H., Wilmington	1902	1902
Jeff. Med. Coll., Phila., 1902		
Bellamy, W. J. H., (Hon.), Wilmington	1870	1874
Univ. of New York, 1868		
Bolles, Charles P., Jr., Wilmington	1908	1909
Univ. of Va., 1897		
Bowdoin, George E., Wilmington	1914	1916
Med. Coll. of Va., 1914		
Bulluck, Ernest S., Wilmington	1911	1911
Univ. of Md., 1911		
Bulluck, David W., (Hon.), Wilmington	1875	1875
Univ. of Md., 1873		

Name and Address	*Licensed*	*Joined State Society*
Codington, H. A., Wilmington Univ. of Md., 1911	1915	1917
Cathell, J. E., Wilmington Univ. of Md., 1899	1902	1906
Cranmer, J. B., Wilmington Univ. of N. C., 1905	1905	1907
Croom, G. A., Wilmington N. C. Med. Coll., 1909	1909	1916
Farthing, L. E., Wilmington Univ. of N. C., 1906	1906	1913
Graham, Benjamin R., Wilmington Univ. of Va., 1895	1895	1916
Green, Thomas M., Wilmington Univ. of Md., 1900	1900	1904
Harris, Andrew H., Wilmington Medico-Churugical, Phila., 1893	1892	1894
Hart, E. R., Wilmington Univ. of Md., 1901	1901	1918
Honnet, Joseph H., Wilmington P. and S., N. Y., 1900	1901	1904
Hooper, Joseph W., Wilmington Univ. of Md., 1909	1912	1919
Koonce, S. Everett, Wilmington P. and S., Balt., 1896	1896	1900
LeGwin, John B., Wilmington Tulane Univ. of La., 1911	1913	1916
Love, W. J., (Hon.), Wilmington S. C. Med. Coll., 1861	1861	1874
Mebane, W. C., Wilmington N. C. Med. Coll., 1905	1905	1916
McDonald, Alex. D., (Hon.), Wilmington Washington Univ. School of Med., 1877	1870	1879
McMillan, W. D., (Hon.), Wilmington Univ. of Md., 1868	....	1892
Moore, William H., Wilmington Jeff. Med. Coll., Phila., 1910	1910	1911
Miller, J. F., Wilmington	....	1919
Murphy, John G., Wilmington Univ. of Louisville, 1903	1903	1905
Nesbitt, Charles T., Wilmington, (Akron, Ohio) Balt. Med. Coll., 1903	1907	1908
Page, B. W., Wilmington Tulane Univ., 1909	1909	1919
Pridgen, Claude L., Wilmington Jeff. Med. Coll., Phila., 1901	1901	1915
Robertson, James F., Wilmington Univ. of Pa., 1913	1913	1916
Schonwald, J. T., (Hon.), Wilmington Long Island Med. Coll., 1879	1880	1881
Sidbury, J. B., Wilmington Columbia University, N. Y., 1912	1915	1916
Slocum, R. B., Wilmington Johns Hopkins, 1905	1907	1907
Tankersley, J. W., Wilmington Jeff. Med. Coll., 1906	1906	1918
Thomas, G. G., (Hon.), Wilmington Univ. of Md., 1871	1871	1872
Wessell, John C., Wilmington Univ. of Md., 1900	1900	1900

NORTHAMPTON COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, Mahlon Bolton, (Hon.), Rich Square	1885	1885
Jeff. Med. Coll., Phila., 1885		
Secretary, F. M. Register, Jackson	1891	1918
Ky. School of Med., 1893		
Brittle, Paul C., Conway	1907	1910
Univ. Coll. of Med., Va., 1907		
Cooke, Quinton H., Woodland	1905	1907
Univ. of N. C., 1905		
Lewis, Henry W., (Hon.), Jackson	1885	1887
Univ. of N. Y., 1877		
Lister, J. L., Jackson	1896	1909
Med. Coll. of Va., 1896		
McDaniels, L. E., Lasker	1915	1916
Univ. of Md., 1911		
Parker, Clifton G., Woodland	1907	1913
Univ. of Va., 1907		
Parker, Carl P., Garysburg	1912	1916
Univ. Coll. of Med., Va., 1915		
Parker, Paul G., Potecasi	1916	1917
Med. Coll. of Va., Richmond, 1916		
Parker, Walter R., Woodland	1916	1919
Med. Coll. of Va., 1916		
Stephenson, M. R., Seaboard	1885	1904
Univ. of Md. and Coll. of P. and S., 1881		
Vaughn, J. C., Rich Square	1915	1916
Med. Coll. of Va., 1915		

ONSLOW COUNTY SOCIETY

President, E. L. Cox, Jacksonville	1892	1892
Univ. of Md., 1889		
Secretary, A. M. McCuiston, Richlands	1911	1917
N. C. Med. Coll., 1911		
Bryan, Lorenzo D., Snead's Ferry	1910	1911
Tulane, 1910		
Duffy, R. N., New Bern	1907	1915
Johns Hopkins Univ., Med. Dept., 1906		
Hammond, A. F., Pollocksville	1903	1914
Va. Univ. Coll. of Med., 1903		
Parrott, Wm. T., Kinston	1895	1901
Tulane Univ., 1895		
Stockton, W. I., Swansboro	1915	1919
Md. Coll. of Phys. and Surg., 1914		
Sutton, Carl W., Richlands	1905	1907
Tulane Med. Coll., 1905		
Thompson, Cyrus, Jacksonville	1885	1905
Univ. of Pa., 1878		

ORANGE COUNTY SOCIETY

(See Durham-Orange)

PAMLICO COUNTY SOCIETY

President, D. A. Dees, Bayboro	1903	1905
Balt. Med. Coll., 1903		
Secretary, J. J. Purdy, Oriental	1914	1915
Med. Coll. of Va., 1900		

Name and Address	*Licensed*	*Joined State Society*
Attmore. G. S., (Hon.), Stonewall	1870	1872
Washington Univ. School of Med., 1870		
McCotter, St. Elmo, Bayboro	1908	1909
P. and S., Atlanta, Ga., 1908		

PASQUOTANK-CAMDEN-DARE COUNTY SOCIETY

President. Zenas Fearing, Jr., Elizabeth City	1901	1914
Va. Univ. Coll. of Med., 1901		
Secretary. Thos. S. McMullan. Elizabeth City	....	1919
Univ. of Va.. 1888; Univ. of N. Y. City, 1889		
Fearing, Isaiah, Elizabeth City	1896	1904
P. and S., Balt., 1896		
Gates, F. P., Manteo	1886	1892
Bellevue Hos. Medical Coll., N. Y., 1886		
Griggs, John B., Elizabeth City	1892	1904
Univ. of Md., 1892		
Hoggard, Wm. A.. Woodville	1907	1910
Univ. Coll. of Med., Va., 1907		
Kendrick, R. L., Elizabeth City	1913	1915
Univ. of Va., 1913		
Lister, E. W., Weeksville	1896	1916
Med. Coll. of Va., 1896		
Newby, G. E.. Hertford	1901	1916
Jeff. Med. Coll., Phila., 1900		
Peters, W. A., Elizabeth City	1915	1916
Med. Coll. of Va., 1915		
Saliba, John. Elizabeth City	1914	1914
Univ. of Edinburgh. Scotland, 1893		
Sawyer, Walter W., Elizabeth City	1903	1904
Univ. of Md., 1903		
Stephens, W. L., Indian Town	1912	1914
Univ. Coll. of Med., Va., 1912		
Walker. Herbert Dillon, Elizabeth City	1902	1902
Univ. of Md., 1902		
Williams, Claude B., Elizabeth City	1903	1907
Univ. Coll. of Med., Va., 1903		

PENDER COUNTY SOCIETY

President	....	....
Secretary	....	....
Taylor. W. I., Burgaw	1904	1905
N. C. Med. Coll., 1902		

PERQUIMANS COUNTY SOCIETY

President	....	....
Secretary	....	....
Cox, Thomas Alexander, Hertford	1907	1918
Univ. of Md., 1892		
Smith, Robert W., Hertford	1892	1918
Univ. of Md., 1892		
Ward, I. A., Belvidere	1907	1919
Univ. of N. C., 1907		

PERSON COUNTY SOCIETY

President. G. W. Gentry, Timberlake	1910	1911
Univ. of N. C., 1910		
Secretary. Austin F. Nichols, Roxboro	1908	1909
Univ. of N. C., 1908		

Name and Address	*Licensed*	*Joined State Society*
Baynes, R. H., Hurdle Mills	1914	1915
Univ. of Md., 1914		
Baynes, R. S., Hurdle Mills	1881	1904
P. and S., Balt., 1881		
Bradsher, Wm. A., Roxboro	1904	1905
Univ. of Md., 1904		
Long, Walter T., Roxboro	1905	1907
Balt. Med. Coll., 1905		
Love, Bedford E., Roxboro	1904	1905
Univ. of Md., 1904		
Merritt, John H., Woodsdale, R. F. D. 2	1907	1908
Univ. of N. C., 1906		
Montague, S. S., Roxboro, R. F. D. 2	1910	1916
Jeff. Med. Coll., Phila., 1910		
Swann, Jos. F., Semora	1898	1905
P. and S., Balt., 1898		
Teague, R. J., Roxboro	1890	1902
Univ. Md. and P. and S., Balt., 1890		
Warren, Robert F., Prospect Hill	1911	1911
Atlanta School of Med., 1911		

PITT COUNTY SOCIETY

President	....	....
Secretary	....	....
Basnight, Thomas G., Stokes	1905	1907
Univ. of Md., 1905		
Beasley, E. B., Fountain	1911	1915
Univ. of Pa., Sch. of Med., Phila., 1911		
Dawson, Walter W., Grifton	1897	1900
Univ. of Md., 1897		
Dixon, Joseph, Ayden	1893	1895
Med. Coll. of Va., 1894		
Dixon, William H., Ayden	1901	1903
Univ. of Va., 1901		
Ellen, C. J., Greenville	1911	1919
Univ. Coll. of Richmond, 1911		
Frizzelle, M. T., Ayden	1907	1909
Univ. of Md., 1907		
Green, J. C., Greenville	1900	1915
Med. Coll. of Va., 1900		
Hemmingway, J. D., Bethel	1917	1917
N. C. Med Coll., 1915		
Jones, Claude M., Grimesland	1892	1895
Univ. of Md., and Coll. of P. and S., Balt.,1892		
Laughinghouse, Chas. O'H., Greenville	1893	1894
Univ. of Penna., 1893		
Morrill, David S., Farmville	1897	1903
Balt. Med. Coll., 1897		
Morrill, Jenness, Falkland	1888	1900
Univ. of Md., 1888		
Nobles, Joseph E., (Hon.), Greenville	1899	1902
Jeff. Med. Coll., 1899		
Skinner, Louis Cotton, Greenville	1901	1903
Univ. of Md., 1901		
Summerell, G. H., Ayden	....	1919
Thigpen, Frank L., Bethel	....	1919
Whitfield, William Cobb, (Hon.) Grifton	1884	1884
Univ. of Md., 1884		

POLK COUNTY SOCIETY

(See Henderson)

RANDOLPH COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, F. C. Craven, Ramseur	1913	1914
Univ. of Md., 1913		
Secretary, Thomas I. Fox, Franklinville	1899	1904
Vanderbilt Univ., 1894		
Asbury, Francis E., (Hon.), Ashboro	1885	1909
S. C. Med. Coll., 1876		
Hayworth, C. A., Coleridge	1913	1914
Univ. of Md., 1913		
Hubbard, Charles C., Farmer	1890	1904
Jeff. Med. Coll., Phila., 1888		
Hunter, John V., Ashboro	1898	1905
Univ. of Louisville, 1898		
Moore, Wm. J., Ashboro	1893	1901
P. and S., Balt., 1893		
Phillips, Charles H., Fullers	1893	1911
Balt. Univ. School of Med., 1892		
Redding, Alex H., Cedar Falls	....	1904
Coll. of Phys. and Surgs., Balt., 1887		
Shepard, F. A., Liberty	1908	1919
Univ. of Tenn., 1908		
Sumner, William I., Randleman	1893	1904
Univ. of Tenn., 1893		
Tate, C. S., Ramseur	1896	1914
Balt. Med. Coll., 1893		

RICHMOND COUNTY SOCIETY

President	....	....
Secretary	....	....
Coppedge, Neilson P., Ellerbe	1903	1910
University of N. C., 1903		
Everett, Avery C., Rockingham	1897	1903
University of Md., 1897		
Fowlkes, John I., Hamlet	1903	1903
P. and S., Atlanta, 1903		
Garrett, Frank J., Rockingham	1887	1904
University of Md., 1889		
Howell, W. L., Ellerbe, R. F. D.	1910	1911
N. C. Med. Coll., 1910		
James, W. D., Hamlet	1908	1915
Jeff. Med. Coll., Phila., 1908		
Kinsman, Henry F., Hamlet	1897	1904
University of Vermont, 1894		
Ledbetter, James McQ., Rockingham	1894	1903
Vanderbilt Univ., 1894		
McIntosh, W. R., Roberdell	1916	1917
N. C. Med. Coll., 1913		
McPhail, L. D., Rockingham	1900	1902
University of Md., 1900		
Maness, J. M., Roberdell	1909	1910
University of N. C., 1909		
Perry, William C., Hamlet	1912	1914
N. C. Med. Coll., 1911; Univ. of Md., 1912		
Webb, W. P., Cordova	1897	1904
Med. Coll. of S. C., 1897		

ROBESON COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, William E. Evans, Rowland Med. Coll. of Va., 1894	1894	1904
Secretary, J. A. Martin, Lumberton Med. Coll. of Va., Richmond, 1915	1915	1917
Andrews, Nathan H., Rowland N. C. Med. Coll., 1911	1911	1912
Baker, H. M., Lumberton Harvard Med. School, 1917	1917	1919
Beam, R. S., Lumberton Jeff. Med. Coll., 1912	1912	1915
Bowman, E. L., McDonalds Med. Coll. of Va., 1914	1914	1916
Brown, John P., Fairmont Univ. of Md., 1883	1887	1893
Carmichael, Thaddeus W., Rowland Ky. Univ. of Med., 1904	1911	1919
Costner, Thos. F., Lumberton Jeff. Med. Coll., 1882	1885	1918
Currie, D. S., Parkton N. C. Med. Coll., 1906	1906	1907
Harris, David W., Maxton University of N. C., 1908	1908	1911
Hays, A. H., Fairmont	1917	1919
Hodgin, Henry H., Red Springs Univ. of Md., 1905	1906	1907
Johnson, Thomas C., Lumberton Med. Coll. of Va., Richmond, 1903	1903	1903
Knox, John Jr., Lumberton Univ. of Md., 1906	1907	1907
McClelland, Joseph O., Maxton Med. Coll. of Va., Richmond, 1908	1912	1913
McMillan, Benjamin F., (Hon.), Red Springs Univ. of Md., 1882	1884	1884
McMillan, John L., (Hon.), Red Springs Univ. of Md., 1881	1881	1885
McMillan, Roscoe D., Red Springs Univ. of Md., 1910	1911	1912
McPhaul, Wilbur A., Lumberton Univ. of Tenn., 1904	1905	1907
Nash, J. Fred, St. Pauls N. C. Med. Coll., 1914	1914	1918
Poole, C. T., St. Pauls N. C. Med. Coll., 1907	1908	1913
Pope, Henry T., Lumberton N. C. Med. Coll., 1894	1893	1902
Reedy, Howard, Rowland Med. Coll. of S. C., 1884	1887	1914
Ricks, Leonard E., Fairmont Med. Coll. of Va., 1896	1896	1913
Rozier, Richard G., Lumberton Univ. of Md., 1899	1899	1904
Smith, John McNeill, Rowland Jeff. Med. Coll., 1908	1908	1909
Stamps, Thomas, Lumber Bridge University of Louisville, 1888	1888	1890
Thompson, Neill A., Lumberton Md. Med. Coll., 1905	1895	1904

Name and Address	*Licensed*	*Joined State Society*
Tyner, Carl V., Lumberton	1916	1919
Bellevue Med. Coll., 1916		
West, George H., Fairmont	....	1919

ROCKINGHAM COUNTY SOCIETY

President	....	....
Secretary, James T. Taylor, Madison	1908	1910
Univ. of Md. and Coll. of P. and S., Balt., 1908		
Cummings, Michael P., Reidsville	1911	1914
Jeff. Med. Coll., 1911		
Dillard, G. P., Draper	1916	1919
Chicago Coll. of Med. and Surg., 1916		
Ellington, Samuel B., Wentworth	1885	1904
Washington Univ. School of Med., 1872		
Harrison, H. H., Mayodan	1905	1918
Jeff. Med. Coll., 1905		
Jett, Samuel G., Reidsville	1908	1911
University of the South, 1903		
McGehee, John William, Reidsville	1904	1905
Univ. of Md., 1904		
Matheson, R. C., Madison	1891	1904
P. and S., Balt., 1891		
Matthews, William W., Spray	1915	1918
Chicago Coll. of Med. and Surg., 1913		
Martin, Sydnor L., Leaksville	1892	1904
Balt. Med. Coll., 1892		
Ray, John B., Leaksville	1898	1898
Balt. Med. Coll., 1898		
Stewart, J. T., Summerfield, R. F. D.	1898	1898
Taylor, Thomas G., Leaksville	1877	1910
Ky. School of Med., 1877		
Tuttle, A. F., Spray	1901	1907
N. C. Med. Coll., 1901		
Webb, S. Edgar, Draper	1908	1910
N. C. Med. Coll., 1908		
Wilson, Walter P., Madison	1908	1916
N. C. Med. Coll., 1908		

ROWAN COUNTY SOCIETY

President	....	....
Secretary, F. G. Sigman, Spencer	1909	1910
Univ. Coll. of Med., Va., 1909		
Brawley, M. H., Salisbury	1912	1914
N. C. Med. Coll., 1910		
Brawley, Robert V., Salisbury	1903	1904
Univ. Coll. of Med., Va., 1903		
Brown, G. A., Mt. Ulla	1897	1898
Univ. of Va., 1897		
Busby, Julian G., Spencer	1904	1905
Univ. of Md., 1904		
Currie, Edw. Womack, Salisbury	1907	1911
N. C. Med. Coll., 1907		
Edwards, Berte O., Landis	1905	1909
N. C. Med. Coll., 1905		
Ellis, F. R., Salisbury	....	1919
Heilig, Herman G., Salisbury	1899	1904
Univ. of Md., 1899		

Name and Address	*Licensed*	*Joined State Society*
McKenzie, Wm. W., Salisbury	1893	1894
Jeff. Coll. of Med., 1893		
Monk, Henry L., Spencer	1899	1903
Med. Coll. of Va., 1897		
Newman, Harold H., Salisbury	1914	1916
Johns Hopkins University, 1913		
Peeler, John H., Salisbury	1899	1904
Va. Univ. Coll. of Med., 1899		
Ramsauer, Geo. A., China Grove	1886	1887
Jefferson Med. Coll., 1880		
Spencer, Frederick B., Salisbury	1909	1911
Univ. of N. C., 1909		
Stokes, James Ernest, Salisbury	1900	1901
Univ. of Md., 1892		
Slate, Wesley C., Spencer	1909	1913
Univ. of Tenn., 1903		
Summerell, E. Mitchell, (Hon.), China Grove, R. F. D.	1883	1883
Univ. of Pa., 1883		
Trantham, Henry T., (Hon.), Salisbury	1878	1879
University of N. Y., 1875		
Van Poole, C. M., (Hon.), Salisbury	1880	1880
P. and S., Balt., 1880		
West, Robert M., Salisbury	1900	1904
Med. Coll. of Va., 1900		
Warren, A. J., Salisbury	1914	1919
Tulane University, 1914		
Whitehead, John, (Hon.), Salisbury	1880	1880
Univ. of Pa., 1880		
Woodson, Charles W., Salisbury	1905	1907
P. and S., N. Y., 1904		

RUTHERFORD COUNTY SOCIETY

President, L. B. Harrill, Caroleen	1902	1904
Grant Univ., 1897		
Secretary, D. R. Schenck, Rutherfordton	1884	1918
Jeff. Med. Coll., 1883		
Allhands, John M., Cliffside	1910	1911
Chicago Coll. of Med. and Surg., 1910		
Andrews, Robert M., Bostic	1904	1905
Memphis Hosp. Med. Coll., 1904		
Biggs, Montgomery H., Rutherfordton	1907	1908
Univ. of Pa., 1897		
Bostic, Wm. C., Forest City	1905	1907
N. C. Med. Coll., 1905		
Buchanan, C. L., Union Mills	1910	1914
Tenn. Med. Coll., 1910		
Gold, Charles F., Ellenboro	1910	1911
Univ. of N. C., 1910		
Hicks, Romeo, Henrietta	....	1899
Southern Med. Coll., Atlanta, 1888		
Logan, F. W. F., Union Mills	1916	1919
N. C. Med. Coll., 1916		
Norris, Henry, Rutherfordton	1907	1908
Univ. of Pa., 1896		
Reid, George P., Forest City	1894	1899
Univ. Coll. of Med., Va., 1895		
Rucker, Adin Adam, Uree	1908	1909
Univ. of Md., 1908		

Name and Address	*Licensed*	*Joined State Society*
Shull, John R., Cliffside	1910	1913
Univ. of Pa., 1910		
Thompson, J. B., Bostic	1898	1904
P. and S., Balt., 1898		
Thompson, Worth A., Rutherfordton	1895	1904
P. and S., Balt., 1885		
Twitty, John C., Rutherfordton	1892	1904
Balt. Med. Coll., 1892		
Wiseman, Charles B., Henrietta	1902	1902
P. and S., Balt., 1902		

SAMPSON COUNTY SOCIETY

President, E. T. Sessoms, Cooper	1915	1917
N. C. Med. Coll., 1915		
Secretary, Paul Crumpler, Clinton	1907	1908
Univ. of Tenn., 1907		
Beard, G. C., Kerr, R. F.D.	1912	1916
Univ. of Md., 1912		
Hollingsworth, E. T., Ivanhoe	1912	1915
N. C. Med. Coll., 1912		
Kerr, John Daniel, Jr., Clinton	1908	1910
Univ. of Md., 1908		
Matthews, James O., Clinton	1897	1902
Univ. Coll. of Med., Va., 1897		
Parker, J. R., Clinton	....	1919
Parker, O. L., Clinton	1918	1919
Sikes, Gibson L., Salemburg	1900	1902
Univ. Coll. of Med., Va., 1900		
Underwood, O. E., Roseboro	1909	1910
Univ. Coll. of Med., Va., 1909		
Wilson, Robert B., Newton Grove	1889	1904
Ky. School of Med., 1889		

SCOTLAND COUNTY SOCIETY

President, Peter McLean, Laurinburg	1907	1908
Univ. of Md., 1906		
Secretary, James G. Pate, Gibson	1905	1917
Univ. of Pa., 1905		
Erwin, Evan A., Laurinburg	1913	1913
Med. Coll. of S. C., 1912		
Gibson, John S., Gibson	1905	1907
Univ. of Md., 1905		
Hunter, N. C., Laurinburg	1899	1917
Medico-C. of Phila., 1899		
John, Peter, Laurinburg	1897	1904
Univ. of Md., 1897		
McLean, Allen, Wagram	1908	1911
Univ. of Md., 1908		
Prince, Daniel M., (Hon.), Laurinburg	1871	1879
S. C. Med. Coll., 1871		
Shaw, W. G., Wagram	1895	1904
P. and S., Balt., 1892		

STANLY COUNTY SOCIETY

President	....	....
Secretary	....	....
Allen, James A., New London	1901	1904
Univ. Coll. of Med., Va., 1901		

Name and Address	*Licensed*	*Joined State Society*
Atkins, B. T., Badin	1917	1918
Med. Coll. of the State of S. C., 1901		
Campbell, James I., Norwood	1898	1898
Undergraduates N. C. Med. Coll.		
Cox, Benjamin F., Palmerville	1886	1908
Coll. of P. and S., Balt., 1886		
Hall, Julius C., Albemarle	1899	1908
Univ. Coll. of Med., Va., 1890		
Hartsell, F. E., Albemarle	1895	1902
Balt. Med. Coll., 1895		
Hathcock, Thomas A., Norwood	1893	1904
Univ. of Md., 1893		
Hill, Wm. Isaac, Albemarle	1897	1904
Univ. of Md., and Coll. of P. and S., Balt., 1897		
Laton, James F., Albemarle	1904	1909
N. C. Med. Coll., 1904		
Lentz, C. M., Albemarle	1909	1910
N. C. Med. Coll., 1909		
Whitley, Daniel P., Albemarle, R. F. D. No. 3	1890	1898
Univ. of Md., 1889		

STOKES COUNTY SOCIETY

President	....	....
Secretary	....	....
Ellington, James H., Sandy Ridge	1885	1904
P. and S., Balt., 1872		
Jones, Abram G., Walnut Cove	1894	1904
Univ. of N. Y., 1868		
Hill, L. H., (Hon.) Germanton	1877	1877
Jeff. Med. Coll., Phila., 1861		
McCanless, William V., Danbury	1893	1892
Coll. of Phys. and Sur., Balt., 1888		
Tuttle, Reuben G., Walnut Cove	1909	1913
N. C. Med. Coll., 1909		

SURRY COUNTY SOCIETY

President, R. E. L. Flippin, Pilot Mountain	1897	1901
Balt. Med. Coll., 1892		
Secretary, Moir S. Martin, Mt. Airy	1909	1916
Univ. Coll. of Med., Va., 1905		
Ashby, E. C., Mount Airy	1914	1916
Univ. of Phila., Pa., 1914		
Ashby, Thomas B., Mount Airy	1885	1896
P. and S., Balt., 1885		
Baird, C. A., Mount Airy	1909	1912
N. C. Med. Coll., 1904		
Bernard, Holman, Pinnacle	1914	1919
Med. Coll. of Va., 1912		
Divers, George T., Mount Airy	1909	1917
Univ. Coll. of Med., Richmond, 1909		
Flippin, James M., Mount Airy	1884	1910
P. and S., Balt., 1884		
Flippin, Samuel T., Siloam	1898	1898
N. C. Med. Coll., 1898		
Gambill, Ira S., Dobson	1912	1917
N. C. Med. Coll., Charlotte, 1912		
Garbey, R. R., State Road	1915	1919
N. C. Med. Coll., 1915		

Name and Address	*Licensed*	*Joined State Society*
Hollingsworth, Edward M., Mount Airy	1886	1904
P. and S., Balt., 1886		
Hollingsworth, Robert E., Mount Airy	1898	1904
Univ. Coll. of Med., Va., 1898		
Jones, Alex. F., Ararat	1915	1917
N. C. Med. Coll., 1915		
Lancaster, R. M., Dobson	1916	1917
N. C. Med. Coll., 1914		
Moore, W. B., Mount Airy	1893	1904
P. and S., Balt., 1893		
Moorefield, R. H., Westfield, R. F. D. No. 1	1906	1917
N. C. Med. Coll., Charlotte, 1906		
Reece, James M., Elkin	1904	1904
P. and S., Balt., 1886		
Ring, Joseph W., Elkin	1885	1904
P. and S., Balt., 1880		
Rowe, H. B., Mount Airy	1910	1914
Univ. of Md., 1910		
Royall, M. A., Elkin	1885	1912
P. and S., Balt., 1885		
Smith, James B., Pilot Mountain	1885	1896
P. and S., Balt., 1885		
Smith, James T., Westfield	1899	1918
N. C. Med Coll., 1898		
Stone, Wesley M., Dobson	1906	1907
N. C. Med. Coll., 1904		
Taylor, William S., Mount Airy	1874	1894
Jeff. Med. Coll., Phila., 1874		
Wellborn, William R., Elkin	1908	1913
N. C. Med. Coll., 1905		
Woltz, John L., Mount Airy	1902	1904
Southern Med. Coll., Georgia, 1897		

SWAIN COUNTY SOCIETY

President	....	....
Secretary	....	....
Bennett, Aurelius M., Bryson City	1885	1889
Louis. Med. Coll., 1885		
Holt, R. D., Cherokee	1911	1904
Med. Coll. of Va., 1899		

TRANSYLVANIA COUNTY SOCIETY

President	....	....
Secretary	....	....
English, Edwin S., Brevard	1902	1904
Univ. of the South, 1901		

TYRRELL COUNTY SOCIETY

(See Washington-Tyrrell)

UNION COUNTY SOCIETY

President, J. E. Ashcraft, Monroe	1887	1890
Univ. of N. Y., 1887		
Secretary, R. H. Garren, Monroe	1901	1917
Univ. of Nashville, 1900		
Armfield, Romulus, Marshville	1883	1904
Med. Coll. of Va., 1881		

Name and Address	*Licensed*	*Joined State Society*
Blair, Mott P., Marshville	1895	1904
Med. Coll. of Va., 1895		
Jerome, James R., Wingate	1890	1904
Univ. of Md., 1890		
Love, W. M., Unionville	1915	1919
N. C. Med. Coll., 1915		
McCain, Wm. R., Waxhaw	1898	1898
Univ. of Md., 1897		
Nance, George B., Monroe	1885	1904
Jeff. Med. Coll., Phila., 1885		
Neal, John W., Monroe	1887	1904
N. Y. Univ. Med. Coll., 1884		
Payne, R. L., Monroe	1911	1912
Tulane University, 1911		
Perkins, David R., Marshville	1906	1907
Balt. Med. Coll., 1903		
Smith, G. M., Monroe	1914	1919
N. C. Med. Coll., 1914		
Stevens, Samuel A., Monroe	1898	1898
Univ. of Md., 1900		
Whitley, A. D. N., Unionville	1897	1904

VANCE COUNTY SOCIETY

President	....	....
Secretary	....	....
Allen, Benjamin G., Henderson	1904	1908
Bellevue Med. Coll., 1904		
Bass, H. H., Henderson	1899	1900
Univ. of Md., 1899		
Gill, Robert J., Henderson	1880	1900
Univ. of Pa., 1880		
Harris, Fletcher R., (Hon.), Henderson	1882	1883
Univ. of Va., 1881		
Upchurch, Robert T., Henderson	1908	1910
Jeff. Med. Coll., Phila., 1908		

WAKE COUNTY SOCIETY

President, John B. Wright, Raleigh	1899	1899
Univ. Coll. of Med., Richmond, 1899		
Secretary, W. C. Horton, Raleigh	1896	1911
P. and S., Balt., 1897		
Abernethy, Claude O., Raleigh	1906	1907
Univ. of N. C., 1906		
Adams, R. K., Raleigh	1912	1916
Jeff. Med. Coll., Phila., 1912		
Aiken, Alfred, Wake Forest	1911	1917
Univ. Med. Coll., 1911		
Anderson, Albert, Raleigh	1888	1890
Univ. of Va., 1888		
Barbee, G. S., Zebulon	1910	1912
Univ. of N. C., 1910		
Battle, Kemp P., (Hon.), Raleigh	1882	1882
Univ. of Va., 1881; Bellevue Med. Coll., 1882		
Bell, Carl W., Raleigh	1915	1916
Coll. of P. and S., Balt., 1914		
Bell, George M., Wakefield	1885	1893
P. and S., Balt., 1885		
Blalock, Nathan M., McCullers	1890	1904
P. and S., Balt., 1890		

Name and Address	*Licensed*	*Joined State Society*
Buchanan, L. T., Wake Forest	1913	1917
Jeff. Med. Coll., 1913		
Bonner, H. M., Raleigh	1897	1918
Med. Coll. of Va., 1897		
Buffalo, J. S., Garner	1900	1904
Balt. Med. Coll., 1900		
Burt, Benjamin W., New Hill	1886	1904
P. and S., Balt., 1886		
Campbell, Alton C., Raleigh	1910	1911
Univ. of N. C., 1910		
Carstarphen, William T., Wake Forest	1911	1912
Jeff. Med. Coll., Phila., 1904		
Caveness, Zebulon M., Raleigh	1903	1903
Univ. of N. C., 1903		
Cheek, C. E., Fuquay Springs	1912	1914
Univ. Coll. of Med., Va., 1912		
Cooper, G. M., Raleigh	1905	1918
Univ. Coll. of Med., Richmond, 1905		
Cozart, W. S., Holly Springs	1914	1917
Med. Coll. of Va., Richmond, 1914		
Crouch, A. McR., Raleigh	1916	1918
Jeff. Med. Coll., 1916		
Carroll, E. D. D., Raleigh	1900	1900
Woman's Med. Coll., 1895		
Ellington, A. J., Raleigh	1915	1917
Columbia Univ., 1915		
Finch, O. E., Apex	1915	1917
Jeff. Med. Coll., Phila., 1915		
Fowler, M. L., Zebulon	1885	1904
Coll. of Phy. and Sur., Balt., 1881		
Freeman, R. H., Raleigh	1908	1919
Jeff. Med. Coll., 1908		
Gibson, M. R., Raleigh	1905	1914
Univ. of N. C., 1905		
Goodwin, Andrew W., (Hon.), Raleigh	1887	1887
Bellevue Med. Coll., 1887		
Greenwood, A. B., Raleigh	1916	1918
Johns Hopkins, 1916		
Harper, J. M., Jefferson	1906	1917
Haywood, F. J., (Hon.), Raleigh	....	1871
Bellevue Med. Coll., 1868		
Haywood, Hubert B., Raleigh	1909	1910
Univ. of Pa., 1909		
Haywood, Hubert, Raleigh	1879	1879
Bellevue Med. Coll., 1879		
Hester, Joseph R., Knightdale	1910	1911
Univ. of N. C., 1910		
Horton, M. C., Raleigh	1911	1911
Univ. Coll. of Med., Va., 1903		
Jenkins, Charles L., Raleigh	1890	1894
N. Y. Univ. Med. Coll., 1890		
Johnson, Robert Wade, Apex	1901	1904
Univ. of Tenn., 1900		
Jones, E. H., Raleigh	....	1908
Washington Univ., Balt., 1872		
Jordan, Thomas M., (Hon.), Raleigh	1881	1882
P. and S., Balt., 1881		
Judd, Eugene C., Raleigh	1911	1912
Univ. of Pa., 1911		

Name and Address	*Licensed*	*Joined State Society*
Judd, James M., Cardenas	1899	1901
Balt. Med. Coll., 1897		
Knox, Augustus W., (Hon.), Raleigh	1878	1880
Bellevue Med. Coll., 1874		
Lewis, Richard H., (Hon.), Raleigh	1877	1900
Univ. of Md., 1871		
Lowery, John R., Raleigh	1904	1913
Univ. of Md., 1904		
McCullers, James J. L., McCullers	1886	1893
P. and S., Balt., 1886		
McDowell, F. C., Zebulon	1913	1916
Univ. of Pa., 1902		
McGeachy, Robert S., Raleigh	1894	1895
Bellevue Hosp., 1894		
McGee, James William, Jr., Raleigh	1888	1891
Bellevue Med. Coll., 1888		
McKee, John S., Raleigh	1908	1909
Univ. of Md., 1907		
Moore, John L., Wendell	1886	1901
P. and S., Balt., 1886		
Noble, R. P., Raleigh	1907	1916
Univ. of N. C., 1907		
Pendleton, Arthur S., Raleigh	1898	1913
Univ. of Pa., 1895		
Penny, J. A. J., Neuse	1885	1904
University of New York, 1861		
Powers, John B., Jr., Wake Forest	1907	1911
Columbia Univ., Coll. of P. and S., New York City, 1907		
Proctor, I. M., Raleigh	1915	1917
Univ. of N. C., 1913; Univ. of Pa., 1915		
Rankin, Watson S., Raleigh	1901	1901
Univ. of Md., 1901		
Ray, O. L., Raleigh, R. F. D. 1	1899	1904
Univ. Coll. of Med., Va., 1899		
Riddick, Ivey G., Raleigh	1886	1904
Bellevue Hosp., N. Y., 1886		
Riggsbee, A. E., Morrisville	1909	1911
Univ. of N. C., 1909		
Rogers, Jas. Rufus, Raleigh	1886	1904
P. and S., Balt., 1886		
Root, Aldert S., Raleigh	1911	1913
Univ. of Pa., 1911		
Royster, Hubert A., Raleigh	1894	1895
Univ. of Pa., 1894		
Royster, W. I., (Hon.), Raleigh	1869	1874
Bellevue, N. Y., 1869		
Sanderford, R. F., Raleigh	....	1919
Shore, Clarence A., Raleigh	1909	1909
Johns Hopkins, 1907		
Sorrell, L. P., Raleigh, R. F. D. 6	....	1904
Med. Coll. of Va., 1875		
Stancell, Wm. W., Raleigh	1906	1914
Univ. Coll. of Med., Va., 1906		
Stevens, Ralph S., Raleigh	1905	1907
Univ. of N. C., 1905		
Templeton, Jas. M., Cary	1882	1893
Balt. Med. Coll., 1882		
Thompson, Hugh A., Raleigh	1914	1917
Univ. of Pa., 1914		

Name and Address	*Licensed*	*Joined State Society*
Thompson, S. W., Sr., Neuse	....	1904
Med. Coll. of Va., 1875		
Turner, Henry Gray, Raleigh	1907	1910
Univ. of Pa., 1906		
Underhill, Henry P., Wendell	1901	1906
Univ. Coll. of Med., Richmond, 1901		
Washburn, B. E., Raleigh	1912	1919
Univ. of Va., 1911		
Watson, John B., Raleigh	1908	1909
Univ. of N. C., 1908		
West, Louis N., Raleigh	1912	1915
Jeff. Med. Coll., Phila., 1912		
Wilkerson, Chas. B., Apex	1906	1908
Univ. of N. C., 1906		
Wilkerson, T. E., Raleigh	1914	1916
Univ. of Pa., 1914		
Yarborough, R. F., Raleigh	....	1919
Young, L. B., Rolesville	1886	1906
P. and S., Balt., 1886		

WARREN COUNTY SOCIETY

President	....	....
Secretary	....	....
Peete, Charles H., Warrenton	1906	1911
Univ. of Pa., 1903		
Perry, Mark P., (Hon.), Macon	1884	1884
P. and S., Balt., 1884		
Rodgers, W. D., Jr., Warrenton	1913	1915
Jeff. Med. Coll., Phila., 1913		

WASHINGTON-TYRRELL COUNTY SOCIETY

President, William H. Hardison, Creswell	1871	1890
Washington Univ. of Md., 1870		
Secretary, William H. Ward, (Hon.), Plymouth	1886	1886
Univ. of Md., 1881		
Disosway, Alpheus W., Plymouth	1905	1909
Univ. of Md., 1905		
Flowers, Clarence A., Columbia	1907	1910
P. and S., Balt., 1905		
Gilmer, B. H., Cape Charles, Va.	1910	1911
Univ. Coll. of Med., Va., 1903		
Halsey, Benjamin F., Roper	1894	1894
Vanderbilt Univ., 1893		
Hassell, James L., Creswell	1886	1904
P. and S., Balt., 1886		
Speight, John W., Roper	1885	1904
Ky. School of Med., 1885		
Spruill, Joseph L., Columbia	1895	1907
Univ. of Md., 1895		

WATAUGA COUNTY SOCIETY

(See Mitchell.)

WAYNE COUNTY SOCIETY

President, R. B. Miller, Goldsboro	1900	1902
Med. Coll. of Va., 1898		
Secretary, Charles F. Strosnider, Goldsboro	1910	1913
Univ. of Md., 1909		

Name and Address	*Licensed*	*Joined State Society*
Bizzell, Thomas M., Goldsboro Univ. of Md., 1908	1908	1916
Cobb, William H., Jr., Goldsboro Jeff. Med. Coll., Phila., 1889	1889	1890
Crawford, William B., Goldsboro Bellevue Hosp., N. Y., 1886	1886	1904
Daniels, O. C., Goldsboro Med. Coll. of Va., 1903	1903	1916
Daniels, Ralph, Goldsboro Med. Coll. of Va., 1912	1912	1919
Faison, William W., (Hon.), Goldsboro Jeff. Med. Coll., 1878	1883	1883
Ginn, Theo. L., Goldsboro Med. Coll. of Va., 1901	1901	1904
Henderson, C. C., Mount Olive Univ. of Md., 1914	1914	1919
Irvin, Henderson, Eureka Univ. of Md., 1912	1914	1916
Ivey, H. B., Goldsboro Univ. Coll. of Med., Richmond, 1911	1911	1917
Jones, Clara E., Goldsboro Woman's Med. Coll. of Pa., 1894	1894	1897
Lassiter, C. L., Fremont Jeff. Med. Coll., 1915	1915	1918
Moore, J. E., Mount Olive	....	1918
Morris, George B., Mount Olive Univ. of Md., 1910	1910	1912
Patrick, J. E., Seven Springs Univ. Coll. of Med., Richmond, 1900	1900	1917
Person, E. C., Pikeville Med. Coll. of Va., 1904	1904	1908
Person, H. M., Goldsboro N. C. Med. Coll., 1913	1913	1916
Smith, R. A., (Hon.), Goldsboro Vanderbilt Univ., 1879	1882	1887
Smith, William H., Goldsboro Univ. of Pa., 1906	1907	1912
Spicer, John, Goldsboro Bellevue Med. Coll., 1889	1890	1904
Spicer, Richard W., Goldsboro N. C. Med. Coll., 1910; Univ. of Penna., 1911	1910	1916
Steele, William C., Mount Olive Univ. of Md., 1894	1891	1894
Sutton, William G., Seven Springs Jeff. Med. Coll., 1889	1889	1896
Whelpley, Frank L., Goldsboro Washington Univ., St. Louis, 1902	....	1918
Wilkins, John W., Mount Olive Med. Coll. of Richmond, Va., 1913	1913	1917

WILKES COUNTY SOCIETY

President, E. M. Hutchins, North Wilkesboro N. C. Med. Coll., Charlotte, 1896	1896	1904
Secretary, J. M. Turner, North Wilkesboro Univ. of Louisville, 1881	1885	1896
Duncan, Julius E., North Wilkesboro Univ. Coll. of Med., Richmond, 1907	1907	1908

Name and Address	*Licensed*	*Joined State Society*
Eller, Albert J., Readybranch	1895	1904
P. and S., Balt., 1893		
Gilreath, Frank H., North Wilkesboro	1898	1898
Univ. of Nashville, 1898		
Horton, W. P., North Wilkesboro	1896	1904
Balt. Med. Coll., 1892		
Pegram, R. W. S., Canton	1894	1907
Balt. Med. Coll., 1892		
Sink, C. S., Wilkesboro	1912	1913
N. C. Med. Coll., 1912		
Somers, Lee P., Osbornville	1889	1903
White, John W., (Hon.), Wilkesboro	1889	1890
Jeff. Med. Coll., Phila., 1889		

WILSON COUNTY SOCIETY

President, L. J. Smith, Wilson	1918	1918
Jefferson Med. Coll., 1912		
Secretary, E. L. Strickland, Wilson	1916	1917
Med. Coll. of Va., 1916		
Anderson, Wade H., Wilson	1904	1904
Univ. of Va., 1902		
Anderson, William S., Wilson	1880	1900
Washington Univ., Balt., 1868		
Barnes, Benjamin F., Elm City	1902	1902
Univ. of Md., 1902		
Best, Henry B., Wilson	1907	1908
Univ. of N. C., 1907		
Brooks, G. M., Elm City	1919	1919
Jefferson Med. Coll., 1918		
Dickinson, Elijah T., Wilson	1895	-900
Med. Coll. of Va., 1895		
Eagles, Charles S., Wilson, R. F. D. No. 4	1909	1910
Univ. of N. C., 1909		
Foster, J. F., Bailey	1916	1919
N. C. Med. Coll., 1916		
Grady, Leland V., Wilson, R. F. D. 2	1913	1914
N. C. Med. Coll., 1914		
Hackney, B. H., Lucama	1911	1913
Tulane Univ., 1911		
Herring, Benj. S., Wilson	1901	1901
Univ. of Mich., 1900		
Hoover, H. R., Black Creek	1892	1904
Balt. Med. Coll., 1891		
Lamm, Isaac W., Lucama	1899	1900
Univ. Coll. of Med., 1899		
Lewis, George W., Wilson	1885	1894
Univ. of Md., 1886		
Moore, Charles E., (Hon.), Wilson	1875	1875
Bellevue Med. Coll., 1875		
Moore, Edwin G., (Hon.), Elm City	1883	1890
Univ. of Md., 1883		
Moore, K. C., Wilson	1909	1910
Univ. of Mich., 1909		
Person, T. E., Stantonsburg	1911	1914
N. C. Med. Coll., 1911		
Powell, Henry H., Stantonsburg	1911	1914
Med. Coll. of Va., 1911		

Name and Address	*Licensed*	*Joined State Society*
Saliba, Michael M., Wilson	1910	1910
Balt. Med. Coll., 1897		
Smith, G. A., Black Creek	1893	1882
Louisville Med. Coll., 1887		
Swindell, Charles L., Wilson	1909	1910
Univ. of Md., 1909		
Williams, Alfred F., Wilson	1901	1904
Univ. of Md., 1901		

YADKIN COUNTY SOCIETY

President, J. J. Clingman, Cana	1882	1904
P. and S., Balt., 1877		
Secretary, T. W. Shore, Boonville	1899	1904
Univ. Coll. of Med., Va., 1898		
Bryant, C. G., Yadkinville	1902	1919
Couch, V. F., Yadkinville	1910	1919
Columbia Univ., 1910		
Finney, Jonathan R., Boonville	1910	1911
N. C. Med. Coll., 1910		
Harding, Samuel A., Yadkinville, R. F. D. No. 1	1910	1913
N. C. Med. Coll., 1910		
Harding, Thomas R., Yadkinville	1885	1885
P. and S., Balt., 1885		
Leak, Wharton G., East Bend	1899	1904
N. C. Med. Coll., 1900		
Russell, S. L., Yadkinville, R. F. D. No. 1	1889	1904
Univ. of Tenn., 1892		
Salmons, Henry C., Jonesville	1904	1913
N. C. Med. Coll., Charlotte, 1904		

YANCEY COUNTY SOCIETY

President	....	....
Secretary	....	....
Gibbs, J. B., Burnsville	1904	1919
Lincoln Mem. Univ., 1901; N. C. Med. Coll., Charlotte, 1904		
Peck, W. A., Bee Log	....	1919
Ray, John L., Burnsville	1897	1890
P. and S., Balt., 1887		

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TRANSACTIONS

OF THE

NORTH CAROLINA
HEALTH OFFICERS' ASSOCIATION

NINTH ANNUAL SESSION

PINEHURST, NORTH CAROLINA

MONDAY, APRIL 14, 1919

NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION

NINTH ANNUAL SESSION

PINEHURST, MONDAY, APRIL 14, 1919

OFFICERS

Dr. J. R. McCracken, President, Waynesville
Dr. E. F. Long, Vice President, Lexington
Dr. G. M. Cooper, Secretary-Treasurer, Raleigh

PROGRAM

9:00 A. M.

1. Prayer—Dr. T. F. Wickliffe, Kinston.
2. President's Annual Address—Dr. J. R. McCracken, Waynesville.
3. Report of Secretary-Treasurer—Dr. G. M. Cooper, Raleigh.
4. Appointment of
   (a) Auditing Committee;
   (b) Committee on Resolutions;
   (c) Other Committees.
5. Venereal Disease Work in North Carolina—Dr. Jas. A. Keiger, U. S. Public Health Service, Raleigh.
6. Arrangements made by Guilford County for Furnishing its Citizens Diphtheria Antitoxin—Dr. Wm. M. Jones, Greensboro.
7. The Control of Diphtheria—Dr. W. S. Rankin, Secretary North Carolina State Board of Health, Raleigh.
8. Prevention of Degenerate Diseases—Dr. L. J. Smith, Wilson.
9. Orthopedic Defects from Point of View of the Health Official—Dr. L. N. Glenn, Gastonia.
10. Discussion.

2:00 P. M.

Afternoon session held at Eureka Farm-life School and James McConnell Memorial Hospital.

Written reports not exceeding 500 words by city and county health officials.

8:00 P. M.

HOTEL AUDITORIUM, PINEHURST

1. Results of Extra-cantonment Work of Camp Polk—Capt. W. E. Waller, P. A. Surgeon, U. S. Public Health Service.
2. The Dog in the Manger: A Modern Fable—Dr. B. E. Washburn, International Health Board, Raleigh.
3. Overseas Observations regarding Public Health—Lt. Col. Chas. O'H. Laughinghouse, Greenville.
4. Round Table Discussion on Local Health Problems.
5. Report of Committees.
6. Adoption of Resolutions.
7. Election of Officers.
8. Adjournment.

TRANSACTIONS

OF THE

NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION

NINTH ANNUAL SESSION

The Health Officers' Association met on Monday morning, April 14, 1919, in the parlors of the Carolina Hotel, Pinehurst, and was called to order by the President, Dr. J. R. McCracken, of Waynesville.

INVOCATION

Dr. T. F. Wickliffe, Kinston

O, Thou Supreme Ruler of the Universe! we, Thy humble servants, ask Thee to look down upon us with compassion, and to forgive us our many sins of omission and of commission. Grant us, we beseech Thee, wisdom and grace to follow the example of our blessed Master, Jesus, the Great Physician, who healed not only the body, but also the mind and soul of the afflicted. Vouchsafe to us this day Thine aid and so direct our deliberations, during this our present meeting, that each of us may gain new ideas, new inspiration, and new and better methods that will be of use to us in our work for the coming year.

Man goes forth in the pursuit of human happiness, but e'er he has attained it, is ofttimes overtaken by the dark clouds of adversity or disease, or even by the black shadow of death. Endue us health officers with a competency of Thy divine wisdom, that we may the better be enabled to aid our fellow men so that they may avoid these shadows and thus reach the goal. Bless, we pray Thee, O Lord, the whole medical fraternity. Make us a strong and valiant army in Thy service for the betterment of humanity. Let us not fear the power of our adversaries, ignorance, vice, and worldly criticism, but, girding ourselves in Thine armor, let us go forward with knowledge and power to overcome every obstacle in the way of clean, healthy living. Let us not blindly or wilfully bury the talents Thou hast graciously bestowed upon us, but increase and multiply them day by day, using them to Thy glory and to the uplift of Thy people.

Our Father, let Thy blessing rest especially upon this assembly and grant that each of us here present may go forth with renewed strength,

with a sense of Thy mercy and guidance, and with greater faith in the final victory. Grant that our lives may be pure and so dedicated to Thy holy service that, should we be called during the ensuing year to answer before Thine august throne, we may hear the verdict: "Well done, thou good and faithful servant * * * enter thou into the joys of thy Lord."

All this we ask in Jesus' name,

AMEN.

ADDRESS OF WELCOME

DR. L. B. MCBRAYER, SANATORIUM

I know that words of welcome to the State Health Officers' Association are not considered in order. We model after the more important business organizations in the marts of trade and get down to business without any flowers or furbelows. I do want to say, however, that we are very glad to have the health officers and health workers meet here. As perhaps some of you might suspect, we are particularly interested in the work which they are doing.

I remember that on one occasion a president of the Medical Society of our State suggested that there was too much talking about public health in the State Medical Society, and said that he thought we would better put it all in the program for the day on which the health officers held their session, and let the sessions of the State Medical Society be devoted to other things. He soon found out that he had said the wrong thing, because the members of the medical profession, whether or not they were executive officers in the work, were thinking public health, and few of the papers on surgery or gynecology or any other subject that were presented before the State Medical Society failed to mention something in connection with public health work. Some of us who have been attending the sessions for several years will remember that for certain periods the section on Practice of Medicine had the preponderance of thought at our sessions. For example, for a long while after I became a member of the State Society the practice of medicine was a big section, and there was not much said about surgery, a little about obstetrics, and still less about gynecology. A few years passed, and surgery became the dominant thought. Surgeons and would-be surgeons were then cumbering our programs with papers on surgery. For the last few years we have noticed that the thought of the medical profession is centering itself on public health. This is well. I have attended a few meetings of health officers in other states, and I made a vow the other day that I was going to quit using so many superlatives

about North Carolina, but I shall break that rule once and say that, so far as I know or am able to ascertain, we have the best health officers' association ever, and we are more than pleased to have you with us.

The President, Dr. McCracken, extended the courtesies of the floor to Mr. A. W. Hedrick, of Boston, Massachusetts, Secretary of the American Public Health Association; to Mrs. Kate B. Vaughn, Director of the Bureau of Infant Hygiene of the State Board of Health, and to any members of the North Carolina State Medical Society who might be present.

WHAT NORTH CAROLINA IS DOING FOR HER UNFORTUNATES

Dr. J. R. McCracken, Waynesville

During twelve years experience as health officer of my county, dealing with all kinds of public health problems, seeing trouble and misery in all of its phases, and having to deal particularly with the numerous varieties of God's unfortunate beings, I have been so greatly impressed with some of my experiences that I have decided to address you today upon this important subject.

How many people in North Carolina really know what the State is doing for her unfortunates? I confess that, interested as I have been for many years in this subject, I knew very little about it until I began the preparation of this address.

We shall perhaps not have space in this paper to discuss in detail all the classes of unfortunates with which the State is now dealing, or should be dealing, but we hope to give an idea of what is being done in the several institutions for the deaf, blind, deformed, mentally defective, epileptic, and insane, with brief mention of other classes of unfortunates and the institutions for their care.

When I decided to write upon this subject, I addressed a letter to the superintendent of each of the State's institutions asking the following questions:

1. How many inmates can you accommodate?
2. Are you now full?
3. How many applications are at present being held up on account of lack of room?
4. What is the amount of the State's annual appropriation to your institution?
5. Is this amount sufficient? If not, what amount is necessary to carry on your work as it should be done?

I also asked each man for any suggestion that he might make as to what the State could or should do to improve conditions in his insti-

tution. Be it said to the credit of these men that each gave me a prompt and courteous reply, and these replies give an aggregate of information which should be of especial interest not only to the members of this association but to every citizen of North Carolina.

The State School for the Deaf, located at Morganton, is an institution of which we all feel justly proud. It has a plant valued at $600,000 and has accommodations for 300 students with 276 now enrolled. The annual appropriation for the next two years is $80,000. It is the policy of this school never to turn down an eligible child, and Mr. Goodwin says if they were to offer themselves he would take 350. North Carolina has a larger per cent. of her deaf children in school than any other southern state, and the work being done in this institution is of a very high order. I have had the pleasure of a visit to this institution, and have held verbal conversation with children who have never heard a sound. I can give personal testimony to the high grade of work being done by Mr. Goodwin and his efficient corps of teachers.

The School for the Blind, at Raleigh, has accommodations for 300 inmates, is now full, and has about 63 names on file that cannot be taken on account of lack of room, but I am proud to be able to tell you that new buildings on a new site are now being erected, and when completed will be occupied by the white children. Then, I think, every available blind child can be taken and North Carolina will be in the front ranks as to the care of the unfortunate blind children. The annual appropriation to this institution is $85,000, and I am informed that this lacks some $15,000 of meeting the actual needs of the school. The work being done in the North Carolina School for the Blind is of the highest class, and is making itself felt throughout the State.

And while discussing the schools for the State's unfortunates, let us not forget the Stonewall Jackson Training School at Concord, which, I believe, is doing a work second in importance to none in the State, or in the United States. This school was established about ten years ago for the correction of wayward and incorrigible youths, and for the reclamation of youthful criminals. Those who have watched the work of this institution have not only been gratified, but astonished at the results obtained. This is not a prison, as no bars, no stripes nor guards are used. Those in charge are companions for the boys as well as teachers—men whose personal touch is uplifting, and most of whom could command better salaries elsewhere.

The boys are taught useful trades as well as being instructed in books, and when one "rights about" sufficiently to be dependable, he is

paroled and another taken in his place. The institution keeps in touch with the paroled boy, and if his conduct is not what it should be, he is returned.

The letters of gratitude written by former students of this school, together with testimonials from parents and neighbors of boys who have been reclaimed, are enough to convince the most skeptical that the Stonewall Jackson Training School is no longer an experiment, but an institution doing wonders for the future citizenship of our State. The importance of this work cannot be overestimated. The reclamation of one boy, started on a life of crime, changed from a destructive to a constructive force, means more to the State and to society than the education and training of a score of boys whose inclinations are along proper paths.

The capacity of this institution is 120—it is always full—and a long waiting list always on hand. The annual appropriation is $25,000, which is not nearly sufficient. The buildings should be enlarged to accommodate at least 300 boys, and sufficient appropriation should be made to take care of this number.

An institution of which very little is known in North Carolina is the school or home for delinquent girls and women, known as "Samarcand Manor" and located in Moore County. This institution was provided for by the Legislature of 1917, but was not put into actual operation until the fall of 1918. The policy and purpose of this institution are very similar to that of the Stonewall Jackson Training School, and we predict for it a career of usefulness.

The Caswell Training School, our institution for the mentally defective, located at Kinston, had the misfortune to lose two of its largest dormitories by fire in the last few months, and as a consequence quite a number of the inmates had to be sent away—fifty to their homes and forty-four to the State Hospital in Raleigh. At the time of the first fire the enrollment was 200, which was the capacity of the school.

Hundreds of children were denied admission on account of lack of room. The recent Legislature gave this institution $300,000 for permanent improvements, which, with their insurance and other available funds, will give about $330,000 for rebuilding and enlarging the plant. For maintenance this year they get $50,000, and $75,000 for 1920.

The object of this institution is "To segregate, care for and educate, as their mentality will permit, the State's mental defectives; to disseminate knowledge concerning the extent, nature and menace of mental deficiency; to suggest and initiate methods for its control and reduction, and its ultimate eradication from our people; to maintain an extension bureau for instructing the public in the care of the mental

defectives who remain in their homes, and for the after-care of discharged inmates of the institution; to create and maintain a psychological clinic for the study and observation of mental defectives charged with crime, and to give expert advice in all cases of mental defect."

When the rebuilding program is completed there will probably be room for 350 or 400 inmates, but there should be room for 1,000 or more. It is impossible to say how many idiots, imbeciles and morons there are in North Carolina, but the number will run into the thousands. Every year there are born in North Carolina between 300 and 400 mental defectives, who had the right to be born well and strong, both physically and mentally, or ought never to have been born at all. These unfortunates are found in every community, and are always public nuisances, burdens upon society and sources of everlasting embarrassment to their families.

The menace of mental deficiency is one of the burning questions of the day, and one that our wisest statesmen and alienists are working together to solve. The recent sterilization act is a step in the right direction, and in my opinion will lead to further legislation along this line. This act applies only to inmates of institutions and does not touch the vast majority of this class who are allowed to go free and propagate their species unmolested.

I have not arrived at a conclusion satisfactory to myself as to the best solution of this problem, but we must have more stringent legal regulations governing marriage. No man or woman should be granted a license to transmit life to human beings who is not mentally and physically fit. If we could segregate the idiots and imbeciles, and sterilize or asexualize certain morons and vicious criminals, I believe that in a few decades the present deplorable conditions would be greatly improved.

Another class of unfortunates which should not be overlooked by the State is that of certain remediable cases of deformity. To me there is nothing more touching than to see a man or woman, plodding his weary way through life, maimed and humiliated on account of some deformity that could have been corrected in early life. I have in mind a youngster of my town who was born with an exaggerated case of double talipes varus. It seemed that he was doomed to a life of dependency and embarrassment, but thanks to the interest of an intelligent physician, he was sent to a prominent orthopedic surgeon who performed several operations, covering a period of three or four years. Now this boy's feet are straight, and he walks and runs as other boys walk and run, and has a chance in life equal to that of the boy who was born with perfect feet.

This boy's parents were able, by considerable sacrifice, to send him to this great specialist, but what about the boy whose parents can't afford it? Can the State allow him to grow to manhood, a burden upon his family or upon the county, when a few hundred dollars would change his life from a pitiable state of dependency to one of independence and promise? No price is too great to pay when such results can be accomplished.

As yet, we have no institution for this class of unfortunates, but it will be only a short while until the North Carolina Orthopedic Hospital School will be a reality.

Mr. R. B. Babington, a big-hearted, public-spirited citizen of Gastonia, went before the recent Legislature with a proposition from citizens of his town, and was successful in getting an appropriation of $20,000 when a like amount from other sources was raised. I am informed that this sum has already been subscribed, and the erection of this much needed institution will soon begin. It will be located about two miles out of Gastonia on a beautiful knoll, and the city has donated water and electric current for twenty-five years.

For the insane we have three State hospitals, the Eastern Hospital at Goldsboro, the Central Hospital at Raleigh, and the Western Hospital at Morganton, the last named being our largest institution for the insane. We have here buildings and equipment to accommodate nearly 1,500 patients, and, for once in my recollection, it is not now full, owing to the recent opening of a new building.

During the last biennial period they had 190 more applicants than they were able to accommodate. The annual appropriation for the next two years is $325,000, and it is the opinion of the superintendent that this amount will enable them to carry on the work with a fair degree of efficiency.

The Legislature of 1917 appropriated $200,000 for the enlargement and improvement of the plant, but owing to conditions brought about by the war, this money has not been available, but I am informed that it will soon be forthcoming, and I think the Western Hospital is provided for for several years in the future.

The Central Hospital, at Raleigh, can accommodate slightly over 1,100 patients, is now practically full, and has *several hundred* applications now being held up on account of lack of room.

The North Carolina Epileptic Colony is a part of this institution. We have here 179 epileptics, whch number is exceedingly small compared with the number of epileptics in North Carolina who should be in an institution. Some of these unfortunate beings are to be found in the county jails throughout North Carolina, and their families, through

the county health officers, are begging for their admission to the home for epileptics, but nothing can be done for them, as there is no more room.

The present Legislature passed an act transferring the State's prison to the State Hospital Commisson. It will be used as an addition to the Central Hospital, and we hope to see the conditions we have just mentioned greatly improved at an early date. The annual appropriation to the Central Hospital is $205,000, which is said to be sufficient to carry on the work with the amount of room they now have.

The Eastern Hospital, for the care of colored patients, can accommodate 960 inmates—is now full—and during the last biennial period had 112 more applications than they could accommodate. The annual appropriation is $150,000, which seems to be sufficient for maintenance until more room is provided. This institution badly needs more room and better equipment.

The Legislature of 1919 did more to provide for the State's unfortunates than any body that has sat in the State House in recent years, and I believe the additions to and improvements in our institutions provided by this Legislature will place North Carolina far ahead of any other Southern State, and not far behind the foremost State in the Union, in the care of her unfortunates.

And just here I desire to pay my respects to the man who now occupies our executive mansion. He has never lost an opportunity to speak and work for the betterment of the conditions of the unfortunate people of his State. He has gone before legislative committees and before both Houses of the General Assembly in their behalf, and upon the public platform throughout the State he has made earnest appeals for their cause.

The law providing for the examination of all public school children of North Carolina and the treatment of those who are physically defective was the work of Governor Bickett; and it was chiefly through his interest and influence that the bill was passed.

The figures I have given you show that there are between five and six hundred people in North Carolina now insane and denied admission to a hospital, because the great State of North Carolina, with all its wealth and resources, has failed to provide asylum for them. Many are the times that I have made application for commitment of insane persons, and been informed that it was impossible to take them because there was no room. I have seen them, some of them raving maniacs, thrown into the county jail, there to wallow in the filth of their own excreta for weeks, and sometimes months. I have seen them with every thread of their clothing torn off, and the weather bitter cold; I have

seen them bruise and lacerate their poor naked bodies against the cold iron bars that enclosed them. I have had their families beg and plead with tears and aching hearts for their admission to the asylum, but I could do nothing, for the State hospitals were full.

Let us hope that the end to such scenes in North Carolina is near at hand. The present building program will take care of the situation for some time, but I have a plan that is both logical and feasible. The majority of cases now in our State insane asylums are incurable; they do not need the care and attention of alienists and expert medical men. All they require is a place of confinement and attendants who are trained in the care of the insane. Instead of building additions to our several State hospitals, why not erect one central building where all the incurables could be placed, and thus relieve the congestion in the three hospitals, and give room for those who have a chance of being cured? I believe the State should take care of all insane cases, but I do not think it right that certain curable cases of insanity should be denied hospital treatment on account of lack of room, when that room they need is occupied by people for whom our alienists can do nothing.

The North Carolina Sanatorium, at Sanatorium, is doing wonders for the State's tuberculous, and is a Godsend to those of moderate means. People who can't afford the prices charged at most institutions can get the very best treatment and instruction here at the reasonable sum of one dollar per day. Our good friend, McBrayer, keeps this institution so prominently before the profession of North Carolina that I consider it useless for me to discuss it further. But I notice there is no provision made for the tuberculous negro. Being more prone to the disease, and also more ignorant, I fear we shall not make great headway in fighting the great white plague until some steps have been taken toward providing treatment and instruction for him.

The North Carolina Soldiers' Home, and the Home for Confederate Women, located at Raleigh, are both State institutions, each caring for its particular class of unfortunates. The former has about 138 inmates and the latter 27.

I am proud of the record North Carolina is making along this line, and feel sure that she will soon be doing even greater things, and let us hope that in a few years the entire country will hold up North Carolina as an example in the care of unfortunate humanity.

Dr. G. M. Cooper: *Mr. President, ladies and gentlemen*—Before reading my report as secretary-treasurer, I would like to ask if the health officer of Moore County is present. Is the health officer of Richmond County present? Is the health officer of Hoke County present?

Is the health officer of Lee County present? Is the health officer of Scotland County present? I am very glad that we have Dr. Daligny here to represent Montgomery County.

Now, I want to make this statement. This organization is noted for being an organization which attends strictly to business. Our only aim is to better health conditions in North Carolina. We held our meeting here last year in what is known all over the United States as the Sand Hill Board of Trade district. When I see men here like Dr. Gibbs of Yancey, Dr. Smith of Mitchell, Dr. Reynolds and Dr. Sevier of Asheville, all in the far west, to say nothing of our president, from Haywood County, and men from places as far east as Carteret, like Dr. Loftin, I feel that the interest of the health officers of the Sand Hill district toward the organization should be a little more than negative indifference, especially when I know that Lee County enjoys the distinction of having the second highest death rate from typhoid in the State of North Carolina.

REPORT OF SECRETARY-TREASURER

DR. G. M. COOPER, RALEIGH

I wish to take this means of thanking Dr. L. B. McBrayer, acting secretary of the North Carolina Medical Society, for the services of a stenographer to record the minutes of our last meeting, and also for the publication of the minutes in The Transactions of the Medical Society of the State of North Carolina. I would like also to express my thanks just here to the gentlemen who have so kindly agreed to take a part in the program for this meeting.

I have mailed out about two hundred letters to health officers, mayors, and county commissioners relative to getting a full attendance for this occasion. The postage and multigraphing incident to this activity has been paid from the State Board of Health funds as a part of educational expense necessary to the better operation of the health laws of the State of North Carolina.

Balance cash on hand at the close of the Pinehurst Meeting, 1918....	$24.39
Interest on deposit to April 10, 1919.....	.97
Total on hand.....	$25.36

The following committees were appointed by the president:

Auditing Committee—DR. DAN E. SEVIER
DR. A. C. BULLA
DR. C. DALIGNY

Resolutions—Dr. J. S. Mitchener
Dr. Wm. M. Jones
Dr. Arch Cheatham

Dr. L. B. McBrayer: I want to announce to the health officers and others interested that Miss Ehrenfeld, the State Director of Public Health Nursing, is attending the meetings, and if any of you wish to confer with her in regard to nursing, either that you have going on now or that you desire to establish, she will be glad to go over those things with you. For the benefit of all concerned I will say that the Red Cross has ruled that the local chapters may appropriate for the support of a public health nurse such amount from the local funds as they may have on hand or as they may wish to take from their funds.

The badges are in charge of Mr. Snow, out by the front door. When you register you will get your badge. Dr. Cooper wants you to register here also, as attending the Health Officers' Association.

PROGRAM OF VENEREAL DISEASE WORK IN NORTH CAROLINA

Dr. Jas. A. Keiger
Past Assistant Surgeon, U. S. P. H. Service

In the past year and a half you have heard a great deal about venereal diseases. The Government, as a result of the findings in the army, has instituted a nationwide campaign to lessen the incidence of these preventable ills. These pathological entities, once spoken of with the greatest secrecy, are now being discussed freely and in the open. The people are anxious to know about them. The press is publishing the facts. Churches are distributing literature and forming clubs to assist the law-enforcing bodies. The Rotary Club has gone on record as favoring any movement that will tend to produce a healthy community. The fraternal organizations have offered their united effort to the Government's undertaking and, finally, the druggists and physicians are coöperating, as well as practically every other organization of any consequence.

Now, what is the driving force behind this great movement? What are the facts? If you will recall the figures given out by the surgeon general of the army, then you will see the beginning. Up to January 1, 1919, more than 200,000 cases of venereal diseases were reported by the various camp surgeons to the War Department at Washington. During September and October, in which there were large draft calls, the annual rate of venereal disease rose from 88 per thousand to 388. The men, you see, were going from civilian life to the camp. Approximately five-sixths of all cases tabulated were carried into the army. In

other words, they came from among our own home people. Of the first million men entering the service the number found infected belonging to North Carolina was four per hundred. Our State took the tenth place from the bottom in the column of commonwealths in the percentage of disease bearers. Oregon, with only 5 per cent infected, stood at the head of the list, while Florida, with 10 per cent, stood at the foot. It seems that an explanation for this difference may be found in the fact that Oregon has been teaching social hygiene in her public schools for the past several years. Many other facts could be related but time forbids going more into detail, hence we turn to the *modus operandi.*

The United States Public Health Service took up where the army left off and has kept the ball rolling. The bureau began issuing pamphlets setting forth the facts as to the prevalence and prevention of venereal diseases. Up to date it has sent out forty-four different publications which portray in a wholesome manner the true situation. North Carolina, along with forty-two other states, has undertaken to deal with the problem. Practically every organization in the State has offered or has been asked to add its weight to this campaign. And now to bring the matter before us more concretely, let us examine the course to be pursued.

The General Assembly at its last session passed certain laws which enable health officers, the doctors and the law enforcing bodies to deal with these questions along correct lines. Just as you get rid of malaria by removing the source, so must the same thing be done with respect to gonorrhea and syphilis. As medical men, you know that practically all prostitutes are diseased. One of the enactments makes it unlawful to engage in prostitution or aid or abet prostitution in any manner whatsoever; and prostitution is defined as the offering or receiving of the body for sexual intercourse for hire or for indiscriminate sexual intercourse without hire. The man is just as guilty as the woman, his status being at last as it should. The punishment, if convicted, is not to exceed one year imprisonment when guilty in the second degree; and not less than one year nor more than three years imprisonment in or commitment to any penal or reformatory institution when guilty in the first degree. Being guilty in the first degree means proof of two offenses or more within the year next preceding the date of indictment. In case of guilt in the second degree sentence may be suspended; or the defendant may be placed on parole, but before such parole can be granted he shall satisfy the court that he is not infected, or if infected, furnish proof that proper care and treatment will be observed and secured. After a girl or man has served one year in a penal or reformatory

institution when guilty in the first degree such person can be paroled under certain conditions. As you see, the object sought is to prevent the spread of venereal disease by controlling the prostitutes, and if the law is enforced such results will be obtained.

As health officers, you are to play an important part in this campaign. Turning from the act to suppress prostitution let us examine the law for the prevention of venereal diseases. According to this, gonorrhea, syphilis and chancroid are declared contagious, infectious and communicable, and dangerous to the public health. They are made reportable to the health authorities according to such form and manner as the North Carolina State Board of Health shall direct. This much, however, was accomplished by an act of the board last November, a copy of the regulations which you have already received. But the law goes further. It directs and empowers State, county and municipal health officers or their representatives, when deemed necessary to protect the public health, to examine persons reasonably suspected of being infected with venereal diseases, quarantine and treat at public expense when found infected. As an example, last year while working in Charlotte one of the physicians reported to me that he had two persons under treatment who were infected by a certain young "lady" in town. According to the city law, the health officer had the authority to order that girl to submit to an examination. She complied and was found harboring the spirochæta pallida. Being able to pay for treatment she was referred to a private physician. No doubt, many cases of infection were prevented by this one act alone. A few days ago I received two reports from a physician in a certain town stating that the source of infection was a "street walker." Under this law if the doctors will find out from their patients the names and addresses of the ones from whom they contracted the disease and give same to the health officer then he can order them to submit to an examination. If they don't comply, then they are subject to the penalties imposed by this act. In case they submit to the examination and are found infected, then they can be required to take treatment from a private physician or at public expense, and if it appear that they are not traveling the strait and narrow path the health officers can place them in quarantine until cured. Section six empowers the North Carolina State Board of Health through its officers to incur such expense in examining, detention and quarantining, and treatment of just such persons as mentioned above and charge same to the county commissioners. Another feature with which you will be concerned is the right of examining persons confined or imprisoned in any state, city or county prisons for venereal diseases. If infected and there be no other place in which treatment can be given, then the prison

authorities are directed to set aside such rooms as necessary where health authorities can administer the treatment required. Finally, any person who violates any of the provisions of this act or fails or refuses to obey any lawful order issued by any State, county, or municipal health officer shall be guilty of a misdemeanor and fined not less than $25 nor more than $50 or imprisoned for not exceeding thirty days.

There yet remains one other act which affects the druggist. Section one prohibits him from prescribing for venereal diseases. According to section two he can sell venereal disease remedies when called for by his clients, but he must report the sales thereof weekly on forms and in accordance with instructions, to the Bureau of Venereal Diseases of the State Board of Health.

Now, suppose a person infected goes to the druggist and asks him for some medicine for a "case." This druggist is not permitted even to suggest a remedy. To take care of this situation, however, he can refer this person to the quarantine officer, who will give him a prescription or permit to purchase some remedy, for which service the quarantine officer makes no charge. He is paid fifty cents, however, twenty-five cents by the State and twenty-five cents by the city or county for examining this patient and issuing permit or permits for remedies. But you see the point. When this fellow comes under the care of the quarantine officer he is told about venereal diseases and impressed with the importance of securing the best medical treatment possible, hence instead of going back to the druggist to purchase these patent medicines, he finds himself on the way to a clinic or to a specialist for scientific treatment. But what about the fellows who are wise enough to know what remedies to call for? The point made by all the doctors is that the proprietary products tend only to produce chronic cases and seldom ever cure. One section of the law takes care of them. Their names and addresses are reported to the State Board of Health once a week. The State health officer or his deputy, under this law, may require anyone who purchases remedies and who is reasonably supposed to be infected to appear before a physician or health officer for an examination for venereal diseases. Especially valuable will this report be to the health officers in those towns where clinics are being operated. The social worker or nurse who follows up the delinquents at the clinic can at the same time visit these persons who are attempting self-treatment and persuade them to come to the clinic. In other words, she will be scattering information as to the proper course for anyone to follow who may be so unfortunate as to become the victim of his own folly.

In this paper I have mentioned only those features of the program in which you, as health officers, are more vitally concerned. As you

have seen, the work is to be carried along on three lines of attack: First, the removal of the source of infection by suppressing prostitution; second, the prevention of venereal diseases by affording treatment to all persons who are carriers; third, the prevention of venereal diseases by advising the people generally as to the nature of these maladies and the best means of protection, through lectures, pictures, and educational literature. As results already obtained, I may add in closing that sixty girls have been committed to the State Home at Samarcand; clinics have been established at Winston, Asheville, Wilmington, Fayetteville, and Charlotte; and pamphlets to the number of 75,000, in addition to many thousands sent out by the United States Public Health Service, have been distributed. Practically everybody knows about this work now, and the coöperation of all is needed to complete it.

ARRANGEMENTS MADE BY GUILFORD COUNTY FOR FURNISHING ITS CITIZENS DIPHTHERIA ANTITOXIN

William M. Jones, M.D., Greensboro

We are living in a fast and wonderful age, and everything is progressing so rapidly that we are liable to lose sight of details in our mad scramble for statistical results. What does it amount to if you vaccinate six hundred persons in one day and have only a very few successful takes, so long as your records show that you have done this; or what does it amount to, if you have held twenty meetings, made talks to four thousand people, so long as your reports show that you have done that amount of work?

What really counts is not what quantity of work has been done, but the quality of the work. It is a good plan to make haste slowly, and as Davy Crockett said: "Be sure you are right, then go ahead." Have a definite object for everything you do, for you are going to accomplish little by going for the mass. The old saying: "Take care of the pennies and the dollars will take care of themselves," may very aptly be applied to health work.

The State Board of Health has gradually been placing in our hands necessary defensive measures for the purpose of increasing the value of our work, and as we have progressed in our armament, so *pari passu* have these armaments progressed, and now it is up to us to keep abreast of the implements at our disposal. We were given first a very simple weapon in smallpox vaccine, the administration and care of which required but little thought, and from this to typhoid vaccine, and finally to diphtheria antitoxin. In this last we have been given a more com-

plicated weapon and one that cannot be carelessly handled, and by which any act of omission upon our part may result in serious consequences.

I have heard physicians condemn the typhoid vaccine as furnished by the State Laboratory, saying it was no good, that they did not get any reaction, etc. Upon investigation it was found that they had received the vaccine and had placed it on their desks or a table in their offices where it was allowed to stand not for days, but weeks, at a temperature of from 85° to 95° F. and for a time each day exposed to the direct rays of the sun.

Every package I have received has always been plainly marked, "KEEP IN THE ICE BOX." Is there any wonder they did not get a reaction! To fail to get results from typhoid or smallpox vaccine is not such a serious matter, for the chances are at least an even break, but when we are giving antitoxin, we are not doing so for its immunizing but for its curative effects, and to fail to get what may rightly be expected is a serious matter, for you have put a life in jeopardy. You can work a bluff with man, but do not think that you can put anything over on diphtheria.

So be sure that your antitoxin is potent, and there is no way to be sure unless you follow the instructions to keep in an ice box. Know for a certainty that it has been so kept since the day upon which you received it.

There are certain druggists in every county who will be delighted to know of the failure of anything that cuts them out of a profit, no matter how small, and if you do not use scrupulous care, you are going to have a case where it is going to fail. When this happens, you will not get anybody in that particular community to again use the State's antitoxin for a long time. So whatever you do, do not play fast and loose in the care of the antitoxin that has been furnished you. For to do so is simply courting disaster which is certan to come. As I see the situation, there is but one necessary and simple thing to do. It is, of course, important to have the antitoxin in easy reach of as large percentage of the population as possible, but ease of access is only a secondary consideration to having it potent. I have, therefore, only four rules in regard to the handling of antitoxin and they are—

1st. Keep it cool.

2nd. Keep it cool.

3rd. Keep it cool.

4th. Have it at various locations in the county where you know that the first three rules will be carried out.

THE CONTROL OF DIPHTHERIA

DR. W. S. RANKIN
Secretary of the State Board of Health, Raleigh

The subject of this paper as it appears on the program refers to certain things that the State Board of Health is doing and proposing to do in order to bring about a decrease in the death rate from diphtheria.

To begin with, there are in North Carolina every year an average of four hundred deaths from diphtheria. If we assume that the fatality of diphtheria is about 8⅔ per cent, that would mean that we have about five thousand cases every year in the State. In looking around for health problems on which to demonstrate to the people in a very definite way the workings of prevention, and what can be done in the decreasing of disease, I do not know of two better things to work on than the typhoid problem and the diphtheria problem. There are no two problems that one can think of as better than typhoid and diphtheria for demonstrating to the people the benefits of public health work. In my experience in dealing with the public, and, in particular, with the members of the General Assembly, I find that the thing that makes most quickly the best impression is the reduction in the number of typhoid fever deaths in the State. In 1914 we had 839 deaths; in 1915 the number dropped to 744; in 1916 to 700; in 1917 to 626; and last year, 1918, it dropped to 502. (Of this number, 32 deaths occurred at Hot Springs among the interned Germans.)

It is facts like these that stimulate interest and confidence in public health work. There is no reason why we cannot do the same thing in diphtheria as has been done in typhoid. We ought to bring down the number of deaths to at least 200 within the next few years. We ought not to be afraid to make a public announcement to that effect. How are we going to do it?

In the first place, we want to make antitoxin, the remedy for diphtheria, easily available everywhere. That means cheap antitoxin. The State committed itself to that policy several years ago by arranging for cheap antitoxin. During the last six months the State Laboratory of Hygiene has had a supply of antitoxin available for distribution and has been distributing it. Notwithstanding the cheap antitoxin now available, a great many people are still paying four, five or six dollars for antitoxin of the commercial type. The first thing we have to do is to carry out the intent of the General Assembly to get free antitoxin to the people.

A short time ago Dr. Crouch, State Epidemiologist, decided to get out a letter to the heads of all households in which there was a case of diphtheria. (The cases are reported to us, and we have the reports filed.) He got out a questionnaire asking the name of the antitoxin used, the name of the druggist who sold it, and the name of the physician who used it, etc. Up to the first of March he had sent out about 270 letters. About half of the householders replied. From those replies we found that a great deal of the commercial antitoxin is still being used, notwithstanding the fact that the State's supply is available for everyone who wants it.

Now, we are going to publish in the Bulletin and the newspapers the facts contained in those replies. We will give the name of the family, the name of the druggist who sold the antitoxin, the amount that was paid for it, and the price for which the same amount of State antitoxin could be procured. That will get someone in trouble, and that is what we intend. If you will read that article in the next Bulletin, you will see how it will work back home. When Mr. ——— sees that he has had to pay $46.55 for $1.75 worth of antitoxin because his physician did not tell him any better and because his druggist took advantage of his ignorance, he will make trouble. This will eventually bring about free antitoxin. You know the State antitoxin is available for twenty-five cents a package, the charge being for the syringe and the postage or expressage.

The first object being to make the antitoxin free, the second object is to get the antitoxin used. First, we must see that the family in which there is a suspicious case of diphtheria sends for the doctor, and that the doctor, when he gets there, uses antitoxin promptly. To do that we are going to get out another letter to families in which there are deaths from diphtheria, inquiring when the doctor was called, when he diagnosed diphtheria, when he gave antitoxin, etc. When we get all this information we will publish the facts, but before we publish them we will send a representative of the State Board of Health to verify them. In the Bulletin we will publish accounts of several cases in which the family was clearly responsible for the death, by not calling a doctor when there were reasonable evidences of diphtheria. That kind of information will bring about the time when a family with a suspicious case of diphtheria will not take chances but will send at once for a physician. Then we will publish accounts of some other cases in which the family did its duty and called the physician in time, but in which the physician did not give the antitoxin until the disease had been going on for several days, and in which the physician is responsible for the death. That will make the medical profession, or

some members of it, more careful in dealing with diphtheria and in giving antitoxin more promptly.

Those are the first two objects we have in view: to make the antitoxin free and to see that it is properly used. The third object is to bring about the use of toxin-antitoxin as an immunizing agent against diphtheria. I believe the essential facts are these: That ninety or ninety-five per cent of children up to the age of eighteen months are immune on account of the immunity of the mother transmitted to the infant through the milk. Of course, that immunity will not hold for bottle-fed babies. After the eighteenth month children lose their immunity, and at the fifth year there are about sixty to seventy-five per cent not immune. Then they regain their immunity until, at eighteen years of age, seventy-five per cent are immune. This toxin-antitoxin is applied in the same way as the old three-dose typhoid vaccination. You go to a school in a community where there is an outbreak of diphtheria and immunize the children. We hope to begin at an early date educational work directed toward popularizing the use of toxin-antitoxin as a means for bringing about permanent immunity in children exposed to diphtheria.

To summarize, these are the three objects: 1. To make free antitoxin available; 2, to see that the antitoxin is promptly used; 3, to take advantage of the toxin-antitoxin as an immunizing agent in diphtheria.

PREVENTION OF DEGENERATIVE DISEASES

Dr. L. Jack Smith
Health Officer, City and County of Wilson

The slogan, "safety first," adopted by nearly every modern business, has its counterpart in the word "prevention" as applied to public health measures. No word in the English language has a greater significance in relation to the duties of a health officer. No greater opportunity has ever been offered to demonstrate the true meaning of this word than through the health officer in the conduct of the life extension examination.

I deem it unnecessary to go into the history of life extension work, but let me say it came into existence as the result of a need. For several years in private practice I saw and experienced this need. The family physician is rarely called upon to conduct an examination for a supposedly well person. If he does, and finds trouble which might be controlled by the proper hygienic living, his advice is rarely taken in the light it is given. The average layman cannot understand and

appreciate the unselfish advice given by his family physician for his protection against disease. Therefore it should be our purpose to so impress the applicant with the importance and necessity of a thorough physical examination at regular intervals that it will stimulate the medical profession to conduct a more thorough examination, and at the same time inspire confidence in the minds of the laymen.

The necessities and possibilities of this work are urgent and without limitation. When we stop to consider the thousands of people who are suffering and dying every year of such diseases as tuberculosis, cancer, kidney disease, organic heart disease, disease of the blood vessels and certain forms of rheumatism, and as physicians knowing the futility of treatment in these far advanced diseases, then we begin to catch a glimpse of the task that is before us. Not one of the above named diseases has a specific treatment to effect a permanent cure. Naturally, then, we begin to seek for a solution of this problem. The analytical mind will naturally go back to the beginning of things and in doing so we are confronted with the wonderful word "Prevention."

When we compare the ultimate results gained by curative medicine with that of preventive medicine, with special reference to the degenerative diseases, we are bound to admit that greater results, and possibilities of results, lie in the field of the preventive medicine. As a concrete example of what may be accomplished in the field of prevention of degenerative diseases, I will relate this personal experience:

Three brothers and one sister of the same family came to my office in one of the small towns of the county, for examination. In reading the history of each applicant, I was impressed with the fact that their father died of apoplexy at the age of 42 years. Apparently they were all sound, healthy individuals and the examination substantiated this observation with the exception of just one defect—high blood pressure. Further investigation revealed the fact that they, and their father before them, had been big meat eaters. After giving them the proper instructions as to diet and hygiene, one of the brothers said he would carry out these instructions until I came back one week from that day, at which time he would let me take his blood pressure again. This I did and found it had dropped 15 points. This of course was very gratifying to both of us—to him that he had found a remedy to prevent an early death; to me that I had been the means of adding ten to twenty years to the life of each of four people.

Oral sepsis and its systemic effects is a subject which is attracting much attention at the present day. Infected tonsils and pyorrhea (Riggs' disease) have no doubt caused and are causing today a tremendous amount of illness. With all the literature available on this

subject it seems that every physician and dentist, and even the laymen, should be well informed as to the dangers of oral sepsis, and yet my experience for the past year in conducting the life extension examinations proves to my mind that a great many of our physicians and dentists are not giving this subject the attention it demands. In the applicants examined for the past year I found 75 per cent of them with well defined cases of pyorrhea. Now who is responsible for this condition? First, we as physicians are responsible to a large degree, because we have been negligent in our examinations and do not make a special effort to teach the patient the importance of having this trouble treated by a good dentist. Second, the dentists have been too conservative in the matter of treatment to effect a permanent cure. This failure to effect a cure has reflected back to the physician and has made him a little skeptical about referring patients to the dentists. Third, the patients themselves are at fault because they do not coöperate as they should with the physicians and dentists in the treatment of the disease, and do not use the necessary precautions in preventing the disease. A case in mind which comes under my observation fully illustrates the above statements:

A young man of 31 appeared at my office for examination who gave me the following history: Had suffered with rheumatism for four or five years. Had taken treatment under two or three different physicians with no results. Condition steadily grew worse. In his extremity he began to take first one and then another patent medicine, and of course without beneficial results. Finally, after nearly reaching his grave, some friend carried him to an up-to-date physician who examined him thoroughly and found his tonsils, teeth and gums badly diseased, and a heart with a bad organic lesion failing to compensate. This physician instructed him to go immediately to a throat specialist and have his tonsils removed, then to a dentist and have his teeth and gums put in good condition. The patient did this, and four months later when I examined him I found his general health greatly improved, his rheumatism had disappeared, the organic lesion of his heart was still present but the heart was compensating, which enabled him to lead a fairly active and comfortable life. The results of treatment in this case were unusually good, but suppose he had had the proper instructions at the beginning of his trouble. He would have been saved the pain and suffering, the loss of time from his business and a crippled heart which will go through life with him.

The discovery of incipient tuberculosis is probably the greatest field of disease prevention. Particularly is this true with the health officer in the conduct of the life extension examination. I feel quite sure that very

few of us, both health officers and general practitioners, do not feel competent to make a positive diagnosis of incipient tuberculosis. However, we are all competent to take the history and take the temperature and discover by a thorough physical examination certain adventitious sounds in the lungs, which will lead us to suspect the existence of this disease. In fact, the health officer is not supposed to make a diagnosis, but only to record his findings and instruct the patient where and how to seek relief. In other words, our mission is that of a clearing house, directing the sick to seek relief and instruct the well how to keep well.

As a result of the examinations made the past year I discovered seventeen cases of suspected tuberculosis. Four of these were dircted to the State Sanatorium for more complete examinations, which were confirmed by Dr. McCain. By special arrangements fourteen patients were later examined at my office by Dr. McCain, and of these seven were found positive tuberculosis.

The possibilities of a health officer in this work are not confined to the actual and immediate results obtained. The educational value of his work is just as important here as it is in any other field of his work. He has an excellent opportunity to teach the applicant how to live to have good health, and the economic value of a sound body. He can teach the applicant the importance of personal hygiene and sanitary surroundings. The ultimate results of this work, if properly carried on, will stimulate the medical profession and make better and more efficient physicians; will create a desire for better health among the laymen; a better understanding between the physician and his patient, and will add many useful years to the lives of many people.

THE AMERICAN PUBLIC HEALTH ASSOCIATION'S PLAN OF ORGANIZATION

A. W. Hedrich
Secretary American Public Health Association, Boston, Mass.

My purpose in appearing before you is to invite your Association to become affiliated with the American Public Health Association. I am deeply sensible of the honor of addressing you. I wonder if you know how well North Carolina stands in the field of public health? When questions come up regarding rural sanitation we pass them on to Dr. Rankin, as we feel that he is fully as competent to answer them as anyone in the country. The Conference of State and Provincial Boards of Health, further, has honored North Carolina by making Dr. Rankin its president.

I was surprised to learn this morning that your Association is nine years old. I suppose the Massachusetts Association is older than that. But none is more alive. Your fame has reached even to Boston. Mrs. Vaughan was telling me that she went to Topeka, to New York, and to Boston, and in Boston they said that North Carolina is some health State. I am therefore very proud of the opportunity to invite you to affiliate with the association, and I think it very proper that this should be the first State in which I have had that honor.

In view of this invitation, it is proper that I should tell you a few things about the association and about its ideals. It was founded about forty-eight years ago in New Orleans. A body of sanitarians met there to discuss the conquering of yellow fever. For many years the association was a scientific society, meeting once a year, discussing papers, and publishing transactions. But now we realize that we must become more active in shaping the ways of public health, and not merely reflect current opinion. A program has been drawn up and several steps have already been entered upon. I shall briefly comment upon these:

1. Under the leadership of Professor Gunn, the association instituted a health employment bureau. It has also established a health information bureau. Just recently a committee has been appointed to draft model health legislation, so that, if a health officer wants to induce his city to pass health legislation, he will have an outline on which to proceed. We hope to express in these models, in a general way, the essentials of good health administration, so that this outline may be used as a basis.

2. We expect also to undertake the publication of a popular health magazine. We hope that this magazine can be to the public health field what magazines like the *National Geographic* are in their fields, and that it will be so interesting that people will read it because they like it, and not from a sense of duty.

3. We hope to get up standard literature which we can sell in such quantities as the local health officer needs, at prices far below the cost to him if he worked by himself.

4. The organization of state and local health associations. There are a number of states, like North Carolina, which already have an excellent health organization. In other states we hope to stimulate the organization of a society. These local societies accomplish a great amount of good. Many of you cannot be present at the annual meetings of the American Public Health Association, but you do feel that you can come to Pinehurst.

In regard to your own association, may I present a suggestion? At present you are composed of health officers solely, I understand. If you had a strong lay backing you would be aided in your work. Unless the activities of the Red Cross, the local tuberculosis organizations, the nursing organizations and similar bodies are coördinated, their activities will overlap, or there will be gaps. Let your board of directors consider coördinating the other public health activities in the State. Incidentally, there is no good reason why, especially in the larger communities, you cannot extend this type of organization locally, so that you will have in Charlotte, in Raleigh, and at other places, local health societies patterned after the State body.

5. To assist in getting adequate funds for health work and adequate salaries for health officers. You have been fortunate in North Carolina, and your average here has brought up the average for the southern states. Dr. Frankel found, in replies from about five hundred questionnaires, that over sixty per cent of the health officers get salaries of less than twenty-five dollars a week. Even among the full-time health officers, one-fourth receive less than twenty-five dollars a week. Now, it was a surprise to find that the South Atlantic States paid $3,100 for health officers for cities. There may be some fallacy there, as the figures are so much in advance of those in other states.

6. We hope the time will come when the association can have field secretaries to assist local communities, so that if you want to organize a health campaign we shall have a specialist to help you.

7. Studies and investigations leading to reductions in death rates. The illustration of what I have in mind is afforded by the influenza report issued at Chicago. Within forty-eight hours after the meeting adjourned, a report of what was said at the meeting was on the way to every delegate who attended. The health officer had a report that showed him what the health authorities of the country said about influenza. We hope to do that with relation to other conditions and other diseases, and also to formulate standard reports which will back up the local man in his work.

That, in brief, is the program of the American Public Health Association, to which we invite your affiliation. The exact basis of the affiliation I regret that I cannot state at this time. In a few weeks the executive committee will meet and will thresh out this problem. In general, I may say that the affiliated organizations will have directors on the board of directors, so that you will help to direct national action. On the other hand, we have no desire unduly to influence local matters.

Aside from affiliating with us as a body, I hope that every health

officer in North Carolina will join the American Public Health Association. Membership in the association includes an annual subscription to the *American Journal of Public Health.* This magazine gives you all the important information that is being developed in the field of public health. The membership fee of five dollars also gives you the monthly News Letter, telling about other men and what other folks are doing. You will enjoy the News Letter. In addition to these things the services of the health employment and health information bureaus are included.

I want to congratulate you again on the progress you are making, and to thank you for the honor of addressing you.

Dr. Rankin: I would like to express the appreciation that we all feel to the American Public Health Association for sending its secretary, Mr. Hedrich, down here to meet with us, and to suggest some closer bond of union with the American Public Health Association. We are very glad to have Mr. Hedrich with us, and we all appreciate the fine things that he has said about our organization.

I got up to make this definite suggestion to you. When I was employed by the State Board of Health as their secretary, now nearly ten years ago, I remember only one understanding I had with them. That was that there was not to be any very tight restriction on the secretary when it came to buying books and magazines. When I run across a publication, either a book or a magazine, that the office needs, I subscribe for it, and it goes into the permanent library of the State Board of Health. Now my point is this. I do not see why you should not do the same thing in your county. When you buy a magazine or a book as a health officer, I see no reason why you should pay for that magazine or book, any more than you pay for your desk or chairs. Another thing—if you get books and magazines as an individual, when you go out of office you take all of the library of the county health organization along with you. You ought not to do that. Your county ought to collect a library of the history and development of the public health of this country. Certainly the *Journal of the American Public Health Association,* the best public health journal in the country, is a legitimate expense for the county to bear. The counties and towns are able financially to pay for a membership in the American Public Health Association. I suggest that you consider this matter of becoming members of the American Public Health Association, not out of your own private purse, but as representing the county, remembering, of course, that the publications of the association are the property of the county, just as your desk and you chair are.

Dr. McCracken: It has been called to my attention that on the program for the Section on Public Health, on Wednesday, there is a paper on the control and education of midwives, by Dr. G. W. Botts, health officer of Nash County. This is a public health problem. Dr. Botts is here today, but owing to illness in his family he will have to return home before Wednesday. If there is no objection we will hear his paper now.

THE CONTROL AND EDUCATION OF MIDWIVES IN NASH COUNTY

George W. Botts, M.D.

We all realize that midwives are necessary evils, and have been as far back as we have any record of them. There is a record which dates back something more than fifteen hundred years before Christ. This record shows that in those days midwifery was practiced principally by women of the lower class, and by women who were very illiterate. In this respect there is no departure today. Even in our high state of civilization and enlightenment, we are bound to admit that this most important branch of medicine and surgery is the most neglected by the physician and the least protected by law.

I am glad to represent here today a county which has realized this fact, and one among a few counties that has put one foot forward toward protecting the prospective mothers within her boundary against impostors, imposing upon them their empiricism, by enacting the following laws:

Section 1. *Definition.*—The practice of midwifery shall be construed to mean the conducting or the management of any form or stage of labor by a person not duly licensed by laws of the State of North Carolina to practice medicine, in consideration for which services money or other things of value are received, or intended to be received.

Sec. 2. On and after January 15, 1918, it shall be unlawful for any person to practice midwifery in Nash County, who shall not have applied in person to the county health officer for permission to engage in such practice, making a sworn statement setting forth his or her name, age, postoffice address, and the amount and character of training received.

Sec. 3. Permission will be granted by the county board of health to applicants mentioned in section 2 only with certain restrictions, and only after having passed a satisfactory examination before the physician designated by the county health officer, for this purpose, or the county health officer himself.

Sec. 4. Once in every twelve months, whenever and wherever deemed advisable, the county health officer will organize and conduct courses of instruction which it shall be mandatory for midwives to attend, unless excused from this obligation by the county health officer.

SEC. 5. Permission to practice midwifery will not be granted for a period of more than one year at a time, and the county health officer is empowered to terminate this permission, for just cause, at any time it may be advisable to do so.

SEC. 6. No person under 21 years of age will be given permission to practice midwifery.

SEC. 7. It shall be unlawful for any person in the practice of midwifery to attend a woman in the discharge of this service while affected with any contagious or infectious disease.

SEC. 8. The following further restrictions to the practice of midwifery are imposed:

a. Making of vaginal examination is prohibited.

b. Administration of any drug or drugs to hasten the course of labor is prohibited.

c. The wearing of any distinctive uniform is prohibited.

d. The application of grease or any other lubricant to the vulva or vagina of a parturient woman is prohibited.

e. The attending of any woman in labor who has had a previous difficult labor is prohibited.

f. All reasonable aseptic precautions must be employed in connection with the case.

g. A record must be kept of the time of onset of labor, which must be presented on demand to any physician who may visit the patient in labor or thereafter.

h. A duly licensed, practicing physician must be called in to see the patient in case any of the following accidents occur:

1. Abnormal presentations, such as breech, face or hand.
2. Prolapse of the cord (appearing at the vulva).
3. Antepartum or postpartum hemorrhage.
4. Collapse.
5. Convulsions.
6. Any sign or symptom of fever.
7. When the patient has been in labor more than twelve hours without the birth of the child.

SEC. 9. Every person in the practice of midwifery shall carry a card showing that he or she is operating under permission granted by the county board of health, as hereinbefore described, and shall present such card to one or both parents of prospective child upon taking charge of the case.

SEC. 10. The parents of the prospective child shall be held responsible for the employment of any person in the practice of midwifery who shall not have complied with section 9 of these regulations, and for so doing shall receive the same penalty as the person who practices midwifery unlawfully.

SEC. 11. It shall be the duty of every midwife to instil into each eye of the newborn baby, immediately after birth, a two per cent silver nitrate solution.

SEC. 12. On and after April 31, 1919, any person not holding a permit to practice midwifery in Nash County, and such a person desiring to begin the practice of midwifery in said county, must be able to read and to write a legible hand.

Up to date there have been one hundred twenty-one women who have made application in person for permission to practice midwifery in Nash County. Out of this number I have granted sixty-one permits.

According to section three, each applicant is given an examination, which is oral, and if the applicant is found to possess a reasonable amount of intelligence and sufficient knowledge of asepsis, such a person is granted a permit to practice until after being given a course of instruction which consists of thirty lectures and demonstrations. In these lectures I tell them how to prepare themselves before taking charge of a labor case, teaching them the different antiseptics, how to recognize danger symptoms, how to use a clinical thermometer, the general management of a normal case, and how to resuscitate an asphyxiated baby. In the demonstration they are shown how to tell the position and the different presentations without making a vaginal examination. It is demonstrated to them how to tie and dress a cord and how to use the silver nitrate solution in the eyes. I always try to impress upon them the value and importance of its use. They are also shown, by demonstration, how to fill out a birth report intelligently.

After finishing this course of instructions, they are given another examination, covering the lectures which have been given. This time those passing a satisfactory examination are given certificates which are good until January 15th, as they are required to report in person on or before January 15th of each year for the purpose of registering and obtaining a renewal permit until the next course of lectures is given. Our next course of instructions is scheduled to begin on Monday, May 5th. Beginning with this course, the department of health will have provided an obstetrical manikin with which we can demonstrate to the midwife every point that is brought out.

Through these minor steps in the control and education of the midwives in Nash County, the board of health is endeavoring to give intelligent and trained service to the woman in labor who by force of circumstances or otherwise calls to her assistance a midwife.

Dr. Rankin: How many of the sixty-one women to whom permits were given to practice midwifery could read and write?

Dr. Botts: I think about thirty-one.

Dr. Albert Anderson, Superintendent State Hospital, Raleigh: I do not know that I am a member of this association, but it seems to me that men in my work should be required to attend. I was very much interested in your President's address, and I would like to say a word or two about our work, and especially about the appropriations. The Legislature of 1917 issued $3,000,000 in bonds and gave the State Hos-

pital at Morganton $200,000 for six years, and the same amount to the State Hospital at Raleigh, covering a period of six years. At my place I waited two years to accumulate enough to build a kitchen that we had been needing for sixty years. When I got my plans ready I found that we lacked about $15,000 of enough to build it, on account of high cost of materials. At that time we had a breakdown in our heating plant, and had to put in all of the available money to build a heating plant, and also had to anticipate this year's funds. This last General Assembly, seeing our condition, passed a law permitting the Building Commission to make available all the money coming to the various hospitals to be spent whenever, in their opinion, it is necessary. Therefore, we are permitted to put in as many buildings as we can with the money available. Morganton has all of its money to be spent. Raleigh has $100,000 to spend. In the transfer of the prison buildings to the State Hospital, it was the purpose of the General Assembly to use part of the bond issue to make suitable the prison building for hospital use. It was the purpose of the State Legislature in this act to take care of all the insane in the State. I am glad to have this opportunity to tell you some of our troubles, because I believe the health officers of the various counties ought to know more about our work, then you can appreciate why we have to hold up taking your cases until somebody dies or is sent out. I have been pleading with the Legislature for this enlargement ever since I have been superintendent at Raleigh. It ought not to be the plan or the purpose of the State hospitals to take everybody who has any mental trouble. I think we ought to have a plan to take them out of the jails. The real purpose of a State hospital is first to take cases that can be improved or cured, and I wish to ask you gentlemen to send us such cases as can be cured or improved. Do not empty your county homes and jails, expecting the State hospitals to care for such cases. I think the hospital idea should always be kept in mind in treating cases. I regret to state that there has been less progress made in handling and treating mental cases in the last hundred years than in anything else we do. We have made practically no progress in one hundred years, but for the last ten years or the last five years, we have made progress equal to any. This progress has been made possible by a National Committee for Mental Hygiene. Strange to say, that committee was formed by a layman, who had been a patient for three years but who had sense enough to see the abuses. The promoter to whom I refer is Mr. C. W. Beers, and I would be glad if all the health officers in North Carolina would read his book, "A Mind That Found Itself," in order that you may realize the importance of handling cases right. It is only within the last five years that steps have been taken to

release patients from restraints. I think if you will visit a State hospital in North Carolina now, you will hear very little noise from maniacal cases. At night we have a condition almost like that of a private dwelling when we go to sleep, all because we have removed mechanical restraints that aggravate the condition of the patients. I have not only removed them, but have put them out of the reach of attendants who might want to use them.

It is the purpose of the State Hospital to take your cases, but I want to take the suitable cases first. Send us those who are acutely insane, and give us all the information you can. Be patient, because we shall not be able, in the next year or two, to take all the cases we ought to take. The accumulation of five or six hundred perhaps would not turn up today if we had room for them. A great many of them have either died or gotten well. As soon as we can spend this money in making the State's Prison suitable, and in enlarging the buildings, we can take care of the cases. We have to wait for the State's Prison to put up its new buildings, and that will take at least the next two years. We may not get hold of this property to make it suitable for hospital work until after the next Legislature. We have to work out this problem with patience and, I hope, with intelligence. I am glad of this opportunity to tell you of our problem and of our intentions. I do not know that it is the purpose of the board to take any of the money appropriated for Morganton and spend it at Raleigh, because Morganton says it needs all of it. If they do spend it there, we shall not have enough to put the State's Prison in suitable condition. It will be two or three years before we can get to it. I am glad that the State is moving along these lines, because I think the conditions stated by your president are facts that should be recognized and corrected.

I happen to know that the orthopedic hospital has been provided for by an appropriation, and the conditions that you mention will be relieved in a small way.

Dr. P. B. Loftin, Beaufort: Dr. Anderson, I guess, knows that Carteret County has quite an interest in his institution. He has just told us about the quietude that prevails there. Do you remember, Doctor, one woman we sent there from Morehead City? She was the hardest thing to manage that I ever saw; she was the filthiest thing I ever saw; she used the most profane language I ever heard. She was in the jail, and I was going in one night to see her, so I asked the jailer if she had anything with which she could hurt me. I went in and talked to her. Something struck me, and I thought a bomb had burst. It was a tin can filled with soap. Finally you consented to take her, and

sent a little woman down there to take her up to Raleigh. That little woman managed her all right, and I want to know how she does those things.

Dr. Anderson: I cannot tell the doctor how we manage such patients —it is a psychological condition that is hard to explain. We understand how to handle those cases by experience in the work.

I would like to illustrate the importance of taking a case at once. When I appeared before the Legislature of 1915, I cited a case that occurred near the town of Rocky Mount. Some one called me up, and we made arrangements to send an automobile through the country with one of our doctors. The people had tied the woman with ropes to the bed. She had not eaten a morsel in about a week, and was very much emaciated. My physician walked in, untied the patient, and told her to sit up. They brought her a glass of milk and she drank it with a smile. Then they put her in the automobile, and they brought her to Raleigh with no more trouble. I said to Lieut. Governor Daughtridge that it was criminal for the home folks to try to handle those cases when we could do it so much better. The cost, by the time lost from work, etc., ran up perhaps to $50 a day. As soon as the patient reaches the hospital, it costs only about fifty cents a day. When you have to restrain them by inexperienced hands it keeps up the resistance. If you throw off the restraints, and treat them with kindness and gentleness and all the skill you can command—and we ought to have more skill; we ought to have better nurses, with more educational training—it is wonderful to see what we can do, by taking away improper restraints, in improving sometimes even chronic cases. The best nurse Dix Hill ever turned out was a chronic case at that hospital for about fifteen years. She was well educated and so attractive that we decided to try her out in nursing. Why is it that that young lady was cured? I think it amounts to this: We removed every restraint from her in the last attack that she had. We gave her kindness that she appreciated, and there was something started in her soul that has made her the wonder of the hospital. We have to handle these cases just like other cases. I want to say that this problem does not differ from your problem, only that it is more important to handle the mind right when it is sick than to handle the body right when it is sick. It takes more skill in handling it to do it right.

AFTERNOON SESSION

Eureka Farm-Life School and James McConnell Memorial Hospital

Monday, April 14th, 3 p. m.

The Health Officers' Association was called to order by Dr. McCracken, President.

After the call to order several selections were sung by the girls' chorus of the Farm-Life School.

The President announced that Miss Mary Gill Hayes, superintendent of the hospital, had arranged the entertainment for this session, and that refreshments would be served after the meeting. He extended the thanks of the association to her for her kindness; also to Dr. Mudgett for arranging the trip to the School and Hospital. The courtesies of the association were extended to Dr. Mudgett, and he was invited to address the meeting.

Dr. W. C. Mudgett, Southern Pines: It is certainly a pleasure for us to have this opportunity of entertaining you. We are very glad that the day has been fine, and that you consented to come. The purpose for which the James McConnell Memorial Hospital was built was the conception of the Sand Hill Board of Trade, an association made up of members from all towns in the sand hill district. Each town has its local board of trade. The central board of trade is composed of five members. This hospital was built for the purpose of clearing up the developmental defects occurring in school children. A survey of all schools in this district was made by the State Board of Health before the hospital was completed. At that time a card was given the child in whom a defect was found in tonsils, teeth, etc., a card retained by the representative of the State Board of Health, and a card given to the hospital. These children are given the opportunity of coming here to the hospital on clinic day, and given the opportunity of getting work done at a minimum fee. All the money goes to the upkeep of the hospital. Of three hundred and seventeen children with diseased tonsils or adenoids, two hundred and seventy-five or eighty have been operated upon. As a rule, there are about ten cases in the hospital at all times. Just at present we are nearly empty. We have all kinds of cases, from intestinal obstruction to diseased tonsils, and it has been a very great boon. Our present intention is to extend the hospital and build ten private rooms, so that we can take pay patients. In that way the institution will probably become self-supporting. It is our intention at the present time to employ the services of a graduate of medicine

and have him make this his headquarters for the district. He will go into the schools, lecture to the school children and coöperate with the teachers.

We have also established a dental clinic here which has been very successful. I cannot give you the exact number of children treated. The dentist gave his services during an entire month for one day a week. We also had an eye man on the staff, and he gave his services for one day a week. During the influenza epidemic the institution justified its existence. A great many cases were taken care of here who otherwise would have been unable to get nurses.

Dr. B. E. Washburn, Chief of Bureau of County Health Work, State Board of Health: This afternoon session is one of the most important on the program, and I would like to make a motion, if it is in order, that four minutes be given each county for its report, and that if a county is not represented, the report be read by the secretary.

This motion was seconded by Dr. Wm. M. Jones, and was passed.

ANNUAL REPORTS

Alamance County—Dr. W. R. Goley, Quarantine Officer

We have had about the usual amount of sickness for the past year, with the exception of a severe epidemic of influenza, which caused more than 100 deaths.

List of contagious diseases reported and quarantined:

Name of Disease	*Families*	*Cases*
Whooping cough	188	286
Measles	57	73
Typhoid fever	9	9
Diphtheria	27	27
Chickenpox	23	26
German measles	5	7
Scarlet fever	3	4
Smallpox	4	9
Ophthalmia neonatorum	2	2
Septic sore throat	3	3
Bronchopneumonia	6	6
Tuberculosis	1	1
Total	328	453

Visits to county home, 75; county jail, 40; convict camp, 35. Examinations of insane, 10. Deaths at the county home, 5. The three county institutions all very well kept.

Caldwell County—Dr. L. H. Coffey, County Quarantine Officer

I am sure our county health work is in better condition than last year. We keep a supply of diphtheria antitoxin, that the physicians of the county may use it when needed. This antitoxin is, of course, furnished by the

State Laboratory of Hygiene. I have vaccinated about seven hundred persons against typhoid fever and several against smallpox.

Of several thousand school report cards handed me by teachers, I selected more than six hundred of those showing most defective, and had those children meet me at various dispensary points where I examined them and advised with them and their parents as to habits, hygiene and medical treatment, and in many instances, surgical. I found a large percentage of them with defective vision, enlarged tonsils, adenoids, and hookworm. Many of the children have followed the treatment prescribed, however many of them have not. Under the supervision of the State Board of Health our school children received the benefit of a free dental dispensary campaign throughout the county last summer which resulted in much good.

Several hundred of our citizens have died and many have been rendered defective physically from the severe scourge of influenza which invaded our county during the past winter.

Infectious diseases reported from Caldwell County during last year, viz.: Cerebro-spinal meningitis, 1; chickenpox, 3; diphtheria, 29; septic sore throat, 2; measles, 15; scarlet fever, 17; typhoid fever, 41; whooping cough, 93.

Carteret County—Dr. P. B. Loftin, Quarantine Officer

I herewith submit a report as my records show cases of contagious diseases reported from May 1, 1918, to March 15, 1919. Whooping cough—homes reported and placarded in May, 23; June, 74; July, 36; August, 17; September, 12; October, 4; November, 2; December, 18; January, 1919, 1; February 19th to March 15th, 28.

Measles—There were no cases reported from May 1st to December 31st, 1918. January, 17 cases; February, 157; reported March 15, 153 homes.

Typhoid fever, June, 1918, 5 cases reported; July, 7 cases; August, 3 cases; September, 4 cases; October, 2 cases; November, 2 cases; January, 1919, 1 case.

Infantile paralysis—One case was reported in January, this year; my opinion is that a wrong diagnosis was made, but on safe side, as the patient has entirely recovered; one case of diphtheria and 2 cases of septic sore throat were reported during the above period, and 4 cases of chickenpox. But this does not cover the work that I have done, and I cannot cover that in this report. When I took hold of the work our people were very much opposed to having their homes placarded and cared but little about the other fellow's child, so it has been a work of trying to educate the people, and some of the members of the State Board know something of what I had to butt against. But I have given them line upon line, and work every turn or whenever I can put in a word. I am still at work. I am interested because I know it is a great work and will continue to live and grow.

Catawba County—Dr. Geo. W. Shipp, Quarantine Officer

Public health work in this county has made marked improvement during the past twelve months. First of all, the average citizen is taking more interest in his own health and that of his family. His children are being more carefully cared for, their teeth and tonsils are being treated, and ordinary ills are having more attention given them than has been the case

before. The contagious diseases have been easier to control and fewer in number than the year previous, as the people are better informed as to why these diseases should be controlled, while the appearance of a quarantine placard has become more a sign of patriotism than an object of hate on the part of the household where its appearance is required.

The rural homes are having modern conveniences added. A number have installed running water, bath tubs and modern plumbing. The porches and windows are screened and the general sanitary condition of the barns and surroundings is looked for.

The public schools are in a better sanitary condition today than ever before. These buildings are kept clean, the floors are oiled, sanitary drinking coolers are used and the school grounds are laid off for baseball, basketball, and tennis courts.

We are beginning the erection of the sanitary privy recommended by the State Board of Health for a number of the schools of the county, and some have already been completed. A number of school health clubs have been organized, with splendid results. The teachers are more interested than ever in the control of contagious diseases and have exerted a great influence toward making the need of sanitation and quarantine plain to the people.

It is comparatively easy to enforce sanitary laws and quarantine in incorporated towns where you most always have the support of the town officials and its police. Here the people have opportunity to see the benefits of sanitary laws, and the modern use of sanitary closets and sewers and the necessity of protecting the community against contagion. They have daily opportunities to see the enforcement of sanitary laws and quarantine regulations, while the rural population, who are in many instances isolated, are only occasionally forced to face the need of these regulations. That which is a daily happening in a town possibly occurs only once a year in the rural communities. I believe a county should be judged chiefly by its rural quarantine and sanitation.

Indictments. It was my unpleasant duty to indict two physicians and one layman in my county, and I convicted all three. I can hardly say that these indictments increased my popularity any among these parties, but I do believe that they had a good effect upon the communities in which they occurred and incidentally upon these physicians, as they have given me no further trouble by not making prompt reports of their cases.

The number of cases quarantined during the past twelve months was less than the year previous. Typhoid fever has almost been eradicated. This was due to the free typhoid fever inoculations given in the county three years ago and the methods of prevention taught. Some 60 per cent of the population availed themselves either of the free vaccination or had it given by their family physician.

The following is a summary of the placardable diseases reported last year by families: Measles, 23 families; whooping cough, 21 families; diphtheria, 65 families; scarlet fever, 11 families; typhoid fever, 31 families; smallpox, 3 families; meningitis, 3 families.

There were possibly some cases which were not reported, but they were few in number.

Chatham County—Dr. James S. Milliken, Quarantine Officer

Due to the fact that I have only recently been appointed health officer for Chatham County, and as the former health officer has moved from the county, my report will necessarily be brief.

I have no statistics at hand to base a comparison of the health condition of the county last year with that of the preceding years, but it seems to me the number of reportable diseases was extremely low for a county with such a large rural population. There were 188 cases of reportable diseases reported to the health officer, and divided as follows:

Broncho and lobar pneumonia	27
Typhoid fever	17
Septic sore throat	2
Whooping cough	84
Chickenpox	1
Smallpox	6
Measles	42
Scarlet fever	7
Diphtheria	2

The quarantine was adhered to very well, there being no indictments for failure to keep quarantine.

The county commissioners appropriated money for medical inspection of school children last year, but owing to the influenza epidemic and our inability to secure a nurse last fall, this work was not begun. The results of the medical examination of registrants demonstrated the great necessity for close medical inspection of school children, and we intend to carry out this work next fall.

The influenza epidemic spread over Chatham County during the latter months of last fall and a smaller epidemic during January of this year. The mortality was rather low in comparison with other localities. It acted rather queerly here. In the section around Pittsboro the greater number of fatalities was among the negroes, while in the community around Siler City the greater number of fatalities was among the whites. Practically all the schools and churches were closed during the epidemic.

The county commissioners have just installed water works in the courthouse and jail. This has considerably improved the sanitary conditions of the jail,which up to this time had not been of the best.

The health of the inmates of the county home has been good during the past year—there having been only two deaths reported.

Chowan County—Dr. J. S. Mitchener, Quarantine Officer

The work in Chowan has been under the care of Dr. J. W. Warren until recently, and I thought he would make the report.

This I'll say: Our little county is ready for a full-time nurse any time the State and Federal Government can extend us the help the State Board of Health has suggested.

Cleveland County—B. H. Palmer, M.D., Quarantine Officer

(Read by the Secretary.)

I am getting along with the health work about the best I can, under existing circumstances.

We have had so much influenza and other things to do this winter it has been impossible to do much other work. I am urging the doctors to report all the contagious diseases and am furnishing them with franked cards to use in reporting. The doctors, as a rule, report fairly well. I try to explain to them anything that I can concerning their duty.

I don't think that I can get to Pinehurst this time.

Cumberland County—Dr. Johnson

I have not prepared any report, as I did not know the nature of this meeting this afternoon, but I will say that I have been associated with the health work in Cumberland County for several months, and it is very much along the lines of the report from Charlotte.

I am sorry that I cannot give a report in detail, but I will say that infectious diseases have not been very numerous in Cumberland County. We have had some diphtheria, some meningitis, and some smallpox. Our work in rural sanitation has just begun. Our work is getting along nicely, and we are doing some good things in Cumberland.

Cumberland County—Capt. A. R. Sweeney, U. S. Public Health Service

In malaria control there have been 38.9 miles of ditches completed, which involved the clearing of 6.8 acres of ground. There has been laid about 1⅓ miles of terracotta piping in order to make the work of permanent nature.

In rural sanitation, 3,500 residences, schools, churches, etc., have been surveyed, 22 lectures given, 112 water analyses, 212 concrete vaults constructed, 10 septic tanks, 14 water connections, and 7 sewer connections made. Several hundred contracts have been made, and construction is under way by the government and contractors of sanitary closets. Passage has been secured by the board of aldermen of an ordinance for the expenditure of $45,000.00, extending the city water supply.

In the work of control of food and milk supplies, 140 establishments handling food and drinks have been under inspection, and 2,800 inspections have been made, with a marked improvement in the general sanitary conditions of these establishments and the installation of modern equipment. All the dairy herds in the vicinty have been tuberculin tested, work having been done jointly by the State and U. S. Departments of Agriculture. One pasteurizing plant is under installation, and dairies have put in equipment for sterilizing utensils, etc.

Medical inspection of schools: All white children of city and public schools have been medically examined by physician and nurse, and several country schools have been examined. A free dental clinic has been established in Fayetteville and 400 children have received free treatment by the local dentists. Under Dr. G. M. Cooper, of the State Board of Health, 326 patients have been treated in the country schools; 927 amalgam fillings made, in addition to extractions and other treatments.

Public health nursing: 1,839 nursing visits have been made, 1,779 instruction visits, 2,270 follow-up visits have been made and nurses have insisted upon giving 448 smallpox vaccinations and 1,439 typhoid vaccinations, in addition to assisting in clinics and enforcing the State quarantine law against infectious diseases.

Control of communicable diseases: There have been three cases of diphtheria, 180 cases of measles, 15 of smallpox, 816 cases of influenza (since the initial epidemic), 10 scarlet fever, 42 pneumonia, 17 bronchopneumonia, 6 lobar pneumonia, 2 cerebro spinal meningitis, 9 tuberculosis, 59 gonorrhea, 15 syphilis, and 11 chancroid.

Control of venereal diseases: The clinic for treatment of venereal diseases has been established. During the last month 14 patients have been under treatment, and 7 doses of arsphenamine administered.

Dare County—Dr. Franklin P. Gates, County Physician

(Read by the Secretary.)

In making this annual report for Dare County, I will not take up your time with the geography of this section, nor with the relations that we hold with the outside world. Our former report went rather fully into these details so that the membership might have an insight into this remote corner of our beloved State.

We have many trials and tribulations to meet here that seem to defy our very best efforts, and at times, in spite of all we can do, seem determined to put us out of business. Some of these adverse conditions are, of course, met with elsewhere, and seem to have visited every nook and corner of the earth.

During the past year we have had whooping cough in two or three communities of Dare County, which has taken the children and a few grown people by storm. We placarded, talked and furnished literature to the families, schools and individuals, and still, in spite of this, it would crop out in various sections. As a final cudgel to prevent its spread we began vaccinating for it, using a preparation furnished by the State. These cases were mostly young children and babies. So far as I know, or have any record, only two cases that were vaccinated had pertussis, and they were mild.

One section on Hatteras, in this county, has had whooping cough and measles this spring, but Hatteras is about 80 miles from Manteo, and I could not get any definite reports from parents or teachers. One teacher told me she had been threatened with violence if she reported the contagion to me, so she stopped after sending two or three reports of measles. However, I did not attach much importance to her statement, as I knew her habits.

The latest and most death-dealing calamity visited upon us was lagrippe, or more recently known as Spanish influenza. It came like a storm, and spread so rapidly that no one could keep up with it. It visited the strong as well as the weak, the young and the middle-aged alike. People beyond 45 were not so apt to take it. Quite a number of those who did have it had it the second time. We vaccinated for this contagion also until I took the time to figure that any disease that would not render a patient immune from it by having it could not be rendered so by vaccine, so we stopped vaccinating.

The influenza was not bad to treat nor hard to relieve. It was only the complications of lobar pneumonia and pulmonary oedema that gave us trouble. Every complication that I saw alone or in consultation died within a week. We had in the county during October and November about 500 cases with

three deaths, and in January we had around 300 or 400 cases, with 4 deaths. All were due to bronchial pneumonia except one, a child three years old, who died with meningitis.

During our last epidemic we were visited by U. S. Navy doctors and doctors of the U. S. Public Health Service. They came down here in flying machines by direction of the State Board of Health, and U. S. Navy, unknown to me or any one else, except a few chimney corner and jamb-of-the-fence politicians.

The morning of January 19th the Navy sent a doctor down in a seaplane to establish a relief hospital and take charge of the situation. On the day of his arrival I left for the hospital in Norfolk to take a patient for treatment of some chronic trouble, which, however, was not influenza. All of my patients were discharged, and my associate had only a few on hand that were needing attention, and these were rapidly convalescing; in other words we were out of the woods and on praying ground so far as the influenza was concerned.

On my return from the hospital I found the Navy doctor here, but resting. He passed me his orders, which had been given him by the medical aid, stating at the same time that he did not find anything here to do; that he was only waiting for me to come back so he might be able to make his report to the Navy and get out clear. I released him, so he returned to the Naval base. The sham call that he had to visit our section, to relieve the influenza situation, is plainly indicated by the fact that he saw only two cases with my associate while here.

He saw a case of chronic gastritis in the hotel where he stopped, that I had been treating for a month. This was the proprietor of the hotel and a very sick man, but he did not have the influenza. As my office was open to him for anything that he might want, he went over and filled a prescription for the hotel proprietor of subnitrate bismuth, bicarbonate soda, and elixir lactated pepsin. This he sent over with directions for use, but before the first dose was due enough gas had generated to blow the cork and half the medicine out of the bottle and badly soil the dresser and linen. This frightened the family for fear that the patient might meet the same fate, so the nurse would not give the man any of the mixture.

The U. S. P. H. S. doctor, who came all the way from Hartford, Conn., to control the influenza situation in Dare County told me that he was an influenza expert, and that if any man on earth knew anything about Spanish influenza he knew it. I asked him what he did for it and its sequels. He said: "We give them aspirin and whiskey until they turn blue, and then give them something to let them go easy." He remained with us for a few days, taking a trip or so to Elizabeth City, a town about 40 miles north of us. He finally came in and said he had to make a report to his branch of the health department. I gave him the use of my office and typewriter and asked him to submit his report when he finished it, but he did not do so. He made a broken report to the newspaper in Elizabeth City and a full report to the Chicago *Tribune*, which was a poor excuse for anything that happened in Dare County.

I report these facts to show you what little ability and what scant respect our official supervisors have shown in their relations with those of you who have your respective people to protect and serve. May the Great God that

wills and directs the destiny of all mankind, deliver us from such fatal contagion as the Spanish influenza, etc.

Since compiling this report we have visited three colored families with smallpox. We hope to control it without further spread, as most of the children and grown people had smallpox or were vaccinated three years ago. We are now vaccinating those who have come along since that time.

Davidson County—E. F. Long, M.D., Health Officer

The program of our department, aside from quarantine regulations and sanitary ordinances in the towns, has been directed almost entirely through the means of educational propaganda and individual solicitation. This propaganda consists of a series of press letters on timely subjects, distribution of bulletins furnished by the State Board of Health, lectures, often illustrated by lantern slides, and our connection with the established agencies of the county, such as schools, churches, fraternal and social organizations.

Schools: Under the direction of Dr. G. M. Cooper, Chief, Bureau of Medical Inspection of Schools of the State Board of Health, we were able to provide a total of fifteen weeks free dental treatment for school children.

The constructive service rendered to school children, as viewed from the usual economical status of the average householder, has given a tremendous impetus to the influence and activities of the department of health. The relation of a perfect set of sound teeth to the health, development and mental capacity of the growing child is better appreciated. At the same time, a more vital interest is manifested in other phases of preventive and constructive effort.

Sanitation: The reduction in typhoid from 186 cases and 15 deaths in 1916, to 22 cases and no deaths in 1918, representing approximately 900 per cent, we attribute principally to the installation of sanitary privies. Administration of immunizing vaccine has affected the case rate also. Nearly 4,000 immunizing treatments were given in 1916; 805 in 1917, and only 795 in 1918.

Quarantine: Five of the six drug stores in Davidson County carry a supply of State Board of Health diphtheria antitoxin. The physicians of the county have given splendid support to the department in its effort to suppress contagious diseases.

Influenza Control: 6,716 cases of influenza were reported by physicians. Of these 322 developed pneumonia and 93 deaths occurred. Pneumonia rate, 4.6 per cent. Death rate, 1.3 per cent. Reports were received only of cases seen by physicians, probably not exceeding 80 per cent of the cases. The record of pneumonias and deaths is correct, thus reducing the mortality percentage considerably.

On the appearance of the epidemic, sixty school district relief societies were organized and personally instructed by the health officer. Members visited each home, explaining the nature of the disease, the importance of early and complete rest in bed for a sufficient length of time; diet, nursing, and methods of prevention; at the same time, soliciting volunteer nurses. Placards were posted in public places and pamphlets left at each home. By this means, the plows were kept going and few teams were idle, even though the whole family were in bed. We have no doubt that this volunteer

service reduced the percentage of cases, and is largely responsible for our unusually low percentage of complications and deaths.

GENERAL SUMMARY OF ACCOMPLISHMENTS AND RESULTS

Number of newspaper articles published	63
Number illustrated lectures delivered	104
Number of other public meetings addressed	69
Total attendance	12,176
Number letters mailed	5,814
Number pieces literature distributed	33,568
Number of sanitary closets built	1,409
Number of people examined for intestinal parasites	502
Number infected with uncinariasis and treated	20
Number infected with ascaris and treated	23
Number pupils having defects remedied— (Dental, 1,040; Medical, 112)	1,152
Value of dental work if done in private practice	$2,451.50

DURHAM COUNTY—DR. ARCH CHEATHAM, HEALTH OFFICER

The county and city of Durham health department was organized May, 1913. In a few days we shall finish up six years of work. When first organized the department consisted of a board of health and superintendent, and a city sanitary department with three inspectors. Today our organization consists of a superintendent, a bacteriologist and meat and milk inspector; an assistant bacteriologist, office nurse, four visiting nurses (two white and two colored); three city and one county sanitary inspectors; one special food inspector, one special rural sanitary inspector (all whole time), and two city school nurses, (one white and one colored); two hosiery mill visiting nurses, (one white and one colored); and one Metropolitan visiting nurse, all coöperating with the health department.

During the epidemic of flu the health department had 650 additional workers (volunteers and paid), and maintained three emergency hospitals—two for white and one for colored—with a capacity of 30 beds each, fully equipped with a superintendent, a head nurse, and a diet kitchen in charge of an experienced dietitian. Hospitals were organized, equipped and ready to receive patients in 12 hours after it was decided to establish them.

During the months of October, November, and December there were approximately 6,000 cases of flu, with 112 deaths from flu and pneumonia reported in county and city. The health department spent $8,954.84 in the management of the epidemic; the county and city each paying half the expenses. The mayor and chairman of county commissioners informed the board of health to set no limit, but to spend what money was necessary, and the city and county would pay the bills.

One of our strong banks extended the board of health unlimited credit. I believe the confidence in the department expressed in such a substantial way was the result of the educational work done by the department in previous years. Those of us who have been long observing health work believe that educating the public is the force that is to bring about reform in public health matters.

How we handled the flu epidemic was by thorough organization of all the forces—Red Cross, teachers, nurses, preachers, Chamber of Commerce, Merchants' Association and manufacturing plants, under the control of

the health department. The next thing was to locate the cases and placard the house so the workers could find them; daily census was taken of the city, east and west Durham, and the school districts of the county and every sick person reported; conditions noted as to the number of sick in the family, and if physicians, nurses, food, clothing, or anything else was needed, this was reported to the office. Every department had its chief, every district had its chief. No one, white or colored, rich or poor, was allowed to want for any attention or necessities. Those in need of hospital attention were taken in ambulance or automobile to the hospital. All soiled clothing was gathered from all parts of the city and county, laundered and returned without cost. Those who were able to pay for nurses, etc., were required to do so after the emergency had passed.

Back to regular work: Our dairymen have maintained the high standard of milk production. As an evidence of their continued efficiency, they again are winners of the "National Dairy Show Banner for Best Market Milk." All food establishments, grocery stores, markets, cafès, and soft drink places are regularly inspected, and all employees are required to have a health certificate. To give some idea of the scope of food inspection, we condemned last year 22,700 pounds of meat, fish, etc. This unusual amount was due largely to bad transportation. Sometimes one-half car load of meat had to be condemned. If inspection had been slack, much unwholesome food would have been served our people.

Sanitary Department: Had installed 57 septic tank closets (L. R. S. Type), and 109 sewer connections made. For extending sewer system the city appropriated $102,000. Sanitary survey of the county and city commenced in December with the assistance of the United States Public Health Service. As this work is yet incomplete, I will make no report on it. The medical inspection of school children is also incomplete.

The department administered 4,619 doses of antityphoid serum, and vaccinated 392 persons against smallpox. We furnished diphtheria antitoxin free, both curative and immunizing.

Number contagious diseases reported and placarded, 743.

Visits made to homes by nurses, 5,237.

Throat cultures taken by the department, 441.

Our laboratory work has grown to the extent that we put in an assistant January 1st. The city water is examined daily, and ice weekly. Physicians of Durham and Durham County and adjoining counties have the use of the laboratory free. Number of examinations made in 1918, 1,469. All culture media used in this work were prepared in the laboratory.

We hope to report to you next year much improvement in all lines, especially in school work, as we hope to add a whole time dentist, and hope some day to have a health department.

Forsyth County—Dr. A. C. Bulla, County Health Officer

The health department, in the performance of its duty, has endeavored to educate rather than temporize with attempts to cure ill health. We have long since learned that it is easier to prevent disease than to cure. All that is needed is a sympathetic community and the coöperation of physicians. Give the wide awake health department this assistance and any community can reduce its death rate. It is only a matter of educating the

people, a process, I admit, that is slow, but a persistent effort is sure to win out. The younger element is being educated along lines which are sure to bear fruit.

About the first of October the county was invaded with Spanish influenza, which spread rapidly to every section, infecting more than 7,000 people, tormenting with constant fear all who were not stricken and, with its complications, one of the most terrible ministers of death, adding many corpses to the church yards. It has been likened to smallpox before the days of Dr. Edward Jenner, who in 1798 gave to the world a preventive against that disease. No section of the county was immune, but it was more severe in city, towns, and thickly settled districts. At Hanes, a cotton mill village, the condition became so serious that it was necessary to establish an emergency hospital to take care of those contracting pneumonia. The scarcity of physicians, together with the condition in Winston-Salem, made it almost impossible for proper medical attention to have been given without it.

During the year the health department has taken up five units of work, namely: educational, typhoid, quarantine, school and soil pollution. The quarantine, school and soil pollution units have been carried out under separate bureaus of the State Board of Health.

EDUCATIONAL UNIT

Public meetings, 73; attendance	8,722
Educational letters mailed	5,018
Articles written for publication	157
Number of pamphlets distributed	3,855
Number leaflets distributed	7,915
Number of posters posted	245
Homes visited	382
Talks to school children	51
Public lectures	73

TYPHOID UNIT

Number of dispensaries held	37
Number vaccinated	574

QUARANTINE UNIT

Number of cases quarantined	567
Number of cases reported	3,496

DISEASES REPORTED

Whooping cough	366
Measles	94
Scarlet fever	19
Typhoid fever	46
Epidemic meningitis	3
Diphtheria	33
Tuberculosis	112
Influenza	2,750
Pneumonia	18
Chickenpox	3
Smallpox	49
Ophthalmia neonatorum	2
Trachoma	1
Visits made to homes to placard and investigate contagious diseases	510
Visits to tubercular patients alone	108

SCHOOL UNIT

Number of examination cards received	154
Number of susceptibility reports received	19
Number of schools visited	51
Number of children examined	1,776
Number of clinics held	38
Number of children treated for decayed teeth	957
Number of children operated for tonsils and adenoids and had glasses fitted	43
Number of children examined by dentist	1,010

NATURE OF WORK

Amalgam fillings	866
Cement fillings	75
Guttapercha	10
Abscesses treated	80
Teeth extracted	996
Children's teeth cleaned	242
Treated for pyorrhea	12
Miscellaneous treatments	44
Children needed nothing	35
Per cent of children needed dental work	96.5
Children unmanageable	14
Total cost	$ 422.40
Cost per child	.422
Low estimate if work had been done in private office	2,349.50

SOIL POLLUTION UNIT

Homes surveyed	2,476
Census	12,236
Homes without closets on first survey	490
Homes with open closets on first survey	1,986
Homes without closets on second survey	345
Homes with open closets on second survey	1,379
New closets built	145
Old closets rebuilt	462
Total number of closets made sanitary	607
Number of persons examined for hookworm	2,729
Number of persons refused examination for hookworm	9,507
Number positive to any parasites on first examination	284
Number negative to any parasites on first examination	2,445
Number positive to hookworm on first examination	124
Number positive to ascaris on first examination	108
Number positive to tænia on first examination	63
Given first treatment for hookworm	121
Given first treatment for ascaris	108
Refused treatment	3
Number of days worked by field workers	485

MISCELLANEOUS

Visits to city hospital	10
Visits to emergency hospital	21
Influenza patients visited	334
Office examinations	15
Persons examined for insanity	32
Visits to examine insane persons	28
Autopsies held	2
Nuisances investigated	15
Cases of pellagra reported	8
Cases of pellagra visited	4
Vaccinated for smallpox	374
Indictments	1

INSTITUTIONS

In addition to the county home, jail, reformatory, two convict camps, Forsyth has a tuberculosis hospital. On an average, about 225 people are cared for, given medical attention, in these institutions each month.

Visits to jail, 151; prisoners examined, 174.

Visits to county home, 82; inmates examined, 115.

Visits to reformatory, 18; boys examined, 24.

Visits to convict camps, 28; prisoners examined, 36.

Visits to tuberculosis hospital, 146; patients examined, 30.

Visits to tubercular patients, 92.

Tubercular patients admitted, 72.

Winston-Salem—R. L. Carlton, M.D., Health Officer

Our report will be based on work done for the calendar year 1918, instead of for year ending April 1st. A great deal of the activities of our department has been routine, yet we feel that good advancement has been made along several lines.

Our organization consists of health officer, city physician, laboratory director, who is also dairy inspector, food store inspector, two sanitary patrolmen, four public health nurses and secretary; all employees are for full time.

VITAL STATISTICS

Total births	1,027
Total deaths	1,207

Of this number of deaths, 27 were nonresident and 82 stillbirths, leaving 1,098 deaths for the year.

Among the chief causes of death were:

Tuberculosis (all forms)	123
Pneumonia (all forms)	186
Influenza	244
Diarrheal diseases	139
Epidemic cerebro spinal meningitis	8
Whooping cough	5
Diphtheria	7
Typhoid fever	18
Pellagra	16
Syphilis	5
Prematurity	39
Stillborn	82

COMMUNICABLE DISEASES

Among those reported were:

Diphtheria	64
Epidemic meningitis	13
Measles	461
Scarlet fever	25
Smallpox	58
Tuberculosis	187
Typhoid fever	113
Whooping cough	215

Some of these show slight increases over 1917, but in the main the communicable diseases were not characterized by any great outbreaks—on the other hand, scarlet fever was almost negligible, and typhoid fever, with 113 cases, is the lowest record in the history of the city. Tuberculosis continues to be one of our greatest problems, and the diseases of early childhood, particularly the diarrheal diseases, continue to take a heavy toll. A good deal of time and effort has been spent in combating tuberculosis and diarrheal diseases, especially in trying to mould public sentiment up to the point of establishing tuberculosis dispensaries and infant welfare stations.

In our typhoid work we have urged better sanitation, fewer flies, cleaner food and drink, and have given 2,600 doses antityphoid vaccine.

Influenza attacked Winston-Salem with at least 6,000 cases in October and 4,000 in December, resulting in 244 deaths. The activities of the department were to a great extent expended on conditions caused by influenza in those two months.

Schools: At the beginning of the school year two new nurses were added to the force, enabling us to have every school visited every day. The medical inspector made 58 visits to schools; the nurses 822 visits; made nearly 15,000 examinations of children; vaccinated 600; excluded 300. In all the school work fine coöperation of teachers, parents and children has been shown.

Arrangements have been made for a dental clinic to begin operations early in 1919.

Many operations for removal of tonsils and adenoids and other defects have been effected during the year.

Charity: More than 1,500 visits were made by the city physician, over 2,000 patients being treated at home and 600 at the office; 425 permits for entrance to city hospital being issued.

Sanitation: A great many wells and surface closets have been abandoned and connections made with the city water and sewerage systems, which are now available to every home in the city. General housing conditions are improving, but much remains yet to be done.

Inspections of the city's water sheds have been made every three months.

Fumigation: We have continued the practice of fumigation, 306 rooms being fumigated, but we have urged that less attention be paid to this method of control of contagious diseases and more attention to bedside disinfection, sunshine, fresh air and cleanliness.

Foods and food handlers: All food handling establishments from dairies, wholesale houses and abattoirs to the smallest groceries and fruit stands have been inspected at frequent intervals as to general cleanliness and sanitation, and all food handlers, numbering over 800, have been examined and given health certificates before being allowed to handle foods. Splendid coöperation has been given us in this work.

City laboratory: There have been examined:

357 samples of milk
112 specimens of water
854 bacteriological specimens
17 suspected rabies

Several miscellaneous specimens, including urine, mother's milk, various foods, drugs, etc. We feel that the city laboratory is doing good work, which will be even better when additional help is provided.

Public health nursing: Our force of public health nurses is of the greatest value. Their visits to schools and homes, carrying their health messages wherever they go, do more real good than any force at our command. Our nurses, in addition to their school work, made nearly 9,000 outside visits to homes, which were distributed among contagious diseases, prenatal, postnatal, instructive, coöperative, etc.

Publicity: Many columns of newspaper space were used, thousands of bulletins pertaining to health matters distributed, several papers read before clubs, societies, etc., a health exhibit at the county fair was made, posters were displayed, etc.

Conclusions: The outstanding features of our year's work have been:

The issuing of health certificates to food handlers;
The Health Survey by *Delineator Magazine* and other workers;
The employment of two additional nurses;
The typhoid clinic in the summer;
Making sewer available to all homes;
Abandoning closets and wells;
Educational exhibit at the fair;
Milk exhibit at National Dairy Show;
Influenza epidemic, 10,000 cases;
113 cases typhoid, lowest in history of city;
25 cases scarlet fever, also lowest in city's record.

Franklin County

(Report made by the Secretary.)

Dr. Malone examined every white school child in the county last year, and arranged for several adenoid clubs. They had a specialist come from Raleigh for about five days' work. This was one of the first counties to try the club plan. I will say that much for Dr. Malone in his absence.

Greene County—Dr. W. W. Whittington

I did not know anything about making a report to the association, so I have only what I can tell. We have had trouble in getting anybody to report anything in Greene County, because they did not know that they were required to do this. The doctors, however, have coöperated in reporting contagious diseases. We had a considerable number of typhoids last year. We have done some vaccinating for typhoid, smallpox, diphtheria, etc. For only the last four months, I believe, has there been an opportunity for comparison. During the four months that I have been able to compare them, the contagious diseases are much less than they were the year before. For the last two months no contagious diseases have been reported at all. Greene County has been desperately healthy. I do not think that it will last, however. The work is apathetic, and has been all the time, but I hope to get some interest aroused later. I have visited nearly all the white schools and have put up the posters that were sent to me, and have talked with everybody who would talk about it.

GUILFORD COUNTY—DR. WM. M. JONES, HEALTH OFFICER.

I haven't any formal written report made out to give you. For one thing I have done all the ordinary work as nearly as I could—the work called for by the statutes. The only thing to which I want to call your attention is something out of the ordinary for me. I want to talk, in a general way, of the dental work we did in the county. That is the only thing I have done in the last year that is different from the previous years, except, of course, the work during the epidemic.

We employed a dentist and had him work in the county for twelve half weeks. We did not have him for the whole week, but only three days at a time. What we agreed to do was to clean the teeth, extract when necessary, and put in cement and amalgam fillings. We did not take up the treating of root canals and abscesses, nor orthodontic treatment. I felt that in some places in the county we could run up to fourteen years of age. In a fairly thickly settled locality we had to cut the age limit down to twelve. We did not cover the whole county, but took only a small portion, and the dentist was busy every minute of the time, with the exception of one Monday when we had quite a severe storm. Geographically, we did cover one-third of the county, but the population of that third is only eight to ten per cent of the whole population. Our man was a local practicing dentist. My proposition to him was that he was to do the work just exactly as he would do it in his office, just as good work, and that he was to be just as careful. I think there were only two cases that were obstreperous. The figures have been published in the Health Bulletin. That is the only thing we have done outside of the general run of the work.

CITY OF GREENSBORO—DR. B. B. WILLIAMS, CITY PHYSICIAN

I am sorry to say that I have no report to make. Coming into the work at the first of the year, and in the middle of the epidemic of influenza, my entire time has been occupied in an endeavor to allay the public fear in order that our schools might not lose the entire session. This has been no small task for a new man, and especially so, considering the unstable state of the public, who were ready upon the least provocation or upon no provocation to demand that the schools be closed. With this situation demanding almost constant attention, there has been no opportunity to do more than the general routine work demanded by statute.

HAYWOOD COUNTY—J. R. MCCRACKEN, QUARANTINE OFFICER.

Outside the usual routine of duties of the county health and quarantine officer, very little has been done in Haywood County during the last year. The medical inspection of school children was taken up but not completed, as the scarcity of physicians and the unusual amount of illness made it impossible for the inspector to continue the work. The State Board of Health kindly sent Miss Pratt—a State school nurse—to help us out, but just as she got started nicely the school stopped on account of influenza. Quite a number, fifty to seventy-five, children were treated, and others will be treated later.

Excepting the big epidemic, infectious diseases have been scarce in Haywood County during the past year. There are now quite a number of cases of measles in and around Canton.

We are still trying to get our people vaccinated against smallpox and typhoid fever.

Hertford County

(Report made by the Secretary.)

The Board of County Commissioners and Board of Education provided for the medical inspection of every white and colored child in the county. They also had an adenoid club for two days. For the latter service the Bureau of Medical Inspection of Schools secured the services of a Raleigh specialist, who operated most successfully and satisfactorily on twenty-three children.

Lenoir County—T. F. Wickliffe, M.D., Health Officer.

I—EDUCATION

On taking charge of the public health work in Lenoir County, January 1, 1919, I was pleased to find that my predecessor, Dr. J. S. Mitchener, believed so thoroughly in educational work, especially in the schools, for it is my opinion also that through this source many of our health problems must be solved. Almost the last words Dr. Mitchener said to me on leaving were: "Wickliffe, I feel as if I am leaving my child to you, I am so fond of the work;" and I have had occasion to realize whereof he spoke, as the data submitted in this annual report are largely of his work.

During the past year we have held 114 meetings, reaching approximately 6,000 people, many of whom were school children, and bright ones at that. In teaching these children of the preventable diseases, which they can and ought to avoid having, I explain how the two classes of diseases are spread, and it is surprising how quickly ideas are grasped and what excellent answers are received to questions directed to various children.

II—SOIL POLLUTION

We have made 1,774 examinations for hookworm, found 974 positive, and have treated 1,148. Lack of field workers has considerably hampered results accomplished along this line. The Board of Education was prevailed upon to pass a ruling requiring each rural school to build two sanitary pit privies, the board agreeing to pay half the expense.

III—QUARANTINE UNIT

Our records show the following reportable diseases for the year, most of which were personally visited by the health officer:

Whooping cough	216
Measles	6
Scarlet fever	7
Diphtheria	12
Smallpox	3
Typhoid fever	37

The typhoid fever proved fatal in only two cases, showing a lowering of the death rate from typhoid of about 86 per cent.

IV—SCHOOL UNIT

Sixty-nine visits were made to schools, many talks given and personal letters written, and much literature distributed among them. Teachers

sent in 1,690 examination cards; 665 children were examined and 513 had defects remedied. We endeavored to interest teachers and pupils in oral hygiene and asked teachers to have roll calls of clean and filthy mouths. Oral hygiene lessons are being frequently given by the teachers. A synopsis of our dental campaign follows:

Treatments	383
Cleanings	338
Fillings: Amalgam	72
Cement	55
Extractions	104
Schools in county	46
Schools represented	31
Households represented	232

This work for three weeks was exclusively rural.

V—LIFE EXTENSION

Only twelve applications were made and examinations given for life extension work last year.

VI—VACCINATIONS

About 7,000 people were vaccinated against typhoid and 330 against smallpox. Last August the Kinston school authorities were induced to order compulsory vaccination against smallpox.

VII—CITY UNIT

Kinston is gradually extending its sewerage, 295 connections having been made during the past year.

Since taking charge of this work I have been making regular weekly visits to the county farm, convict camp, etc., with a view to bettering conditions for the unfortunate inmates. Some improvements have been noted.

Lenoir County

Dr. J. S. Mitchiner, Edenton.

In the first place I want to express thanks to my successor for his comments on my directorship of the Lenoir County department. I may add that we are proud to have forced sewerage connections in about 100 homes of the mill section of our town. By attacking an influential corporation at first the individual owner sees that he must do, and does automatically.

We had in Lenoir two towns, with about 200 homes in one, and 30 in the other. Each of these was almost completely sanitated with pit closets. The pits were installed outside the sewerage district of Kinston and it was a blessed fear that followed this, for some of the landowners began to cry extension of sewerage, which was begun, and, I believe, five blocks have been laid.

The two things that have done more toward getting the Lenoir County department well known and liked are, first, the intensive lecture course carried to almost every white and many negro communities, using a lantern slide machine to illustrate; secondly, the summer dental campaign. Too

much can not be said for Dr. Cooper in successfully engineering this pioneer work. People really felt they got something for their taxes, and all were satisfied.

Macon County

(Report made by the Secretary.)

The children had medical inspection last fall, and one hundred and twenty-nine children were treated, six of the cases being trachoma.

Madison County

(Report made by the Secretary.)

All the children have had medical inspection. About seventy-five of the children were taken to Asheville for operations, and 150 have had dental treatment.

Martin County—Dr. William E. Warren, County Physician, Medical Inspector of Schools

My duties are those of county physician and quarantine officer. I have to perform the usual routine work, such as looking after the various county institutions, viz: the county home and county jail. Monthly reports are made to the county commissioners. Since June 1, 1918, I have had reported to me: Typhoid fever, 23; diphtheria, 10; whooping cough, 13; chickenpox, 17; septic sore throat, 1; scarlet fever, 1; pneumonia following influenza, 85, and about six thousand of our population had influenza. Am glad to say that the physicians and householders are coöperating in reporting contagious diseases. We have about 50 white and colored schools in the county, about evenly divided; the buildings are of modern structure, the light and ventilation are very good in the white schools but not so good in the colored. But I think they are as good as the majority of the colored school buildings in the country districts throughout the State. A large majority of the defective children that I examined last year have been treated and it has been a Godsend to them. There is plenty of diphtheria antitoxin kept on hand in my office to be used by the physicians of the county absolutely free. The county institutions are kept in a most sanitary condition. For five months, beginning October 1, 1918, to March 1, 1919, we had no contagious diseases, but the epidemic of influenza eliminated them, I suppose. Had two cases of lëthargia encephalitis, or "sleeping sickness," in twins two weeks of age. They slept incessantly for ten days, taking nourishment only one time. No medicines were administered to them and at this writing they have recovered. The mother had influenza-pneumonia about one month before they were born. They were born at term. Wish to say the typhoid epidemic was in a thickly settled negro population in the extreme end of the county and typhoid vaccine had never been used.

City of Charlotte—C. C. Hudson, M.D., Health Officer

Below is given a report of the activities of the Charlotte Health Department for the year ending April 1, 1919. Some of the work was done in coöperation with the U. S. Public Health Service and the Red Cross Unit Number 20, both of which organizations were withdrawn from Charlotte in

February, 1919. The withdrawal of these organizations, however, has not interfered materially with the city work, as means have been found to continue the work practically as it was during the existence of Camp Greene.

1. The office work has been maintained, consisting of telephone calls, complaints, filing records of births and deaths, issuing burial permits, newspaper reports, etc.

2. A laboratory was maintained during the year, in which specimens from communicable cases, water and milk analyses were made. About 7,000 examinations were made in all.

3. Five hundred and three sewer connections were made during the year and 2,948 open privies were placed in a fairly sanitary condition. About 800 homes were provided with city water and many wells filled. A system of cleaning the pail closets was established and about $6,000 in coal bill was saved, as the material from closets had been hauled to the incinerator and burned.

4. Rules and regulations were prepared and adopted governing communicable diseases. These regulations were printed in pamphlet form, to be left at the homes where cases of communicable diseases were reported. Investigations of all cases of diphtheria, scarlet fever, smallpox, typhoid fever, and meningitis were conducted by the health officer in person.

5. Inspection of all dairies supplying milk to Charlotte was instituted and regular and systematic bacteriological and chemical examinations have been made.

6. All restaurants and soda fountains have been regularly inspected under regulations adopted during the year.

7. An ordinance was adopted requiring that all stables be cleaned at least once each week and a limited amount of work has been done toward enforcing this ordinance.

8. Thirteen thousand two hundred feet of ditching was done during the year and many additional pools of water have been drained.

9. Vaccines supplied by the State Health Department have been kept in the health office and supplied to the physicians upon request and administered free of charge upon application to the health office. One thousand eight hundred and fourteen persons were vaccinated for smallpox and between five and six hundred people vaccinated for typhoid fever. Diphtheria antitoxin has also been kept on hand and supplied either free or for the 25 cents charged by the State for the syringes.

10. Nearly 7,000 children were examined for physical defects in the schools and 677 have been treated. A number of cases of trachoma were found in the schools and all of these were operated upon during the year, either by private physicians or in clinics arranged by the health officer. About 65 operations were done in the clinics.

11. An ordinance requiring the reporting of cases of venereal diseases and prescribing a quarantine for cases refusing to keep up the treatment, and also requiring druggists to keep a record of the names and addresses of persons purchasing drugs for the treatment of these diseases, was adopted and a free venereal disease clinic was established. More than 11,000 treatments were administered during the year.

12. A city physician was employed to visit charity cases and a free general clinic has been recently established. The work in this clinic is growing rapidly and promises much good to the community.

13. A clinic for the diagnosis and treatment of persons having tuberculosis has been maintained two days each week, and a visiting nurse has been maintained to do the follow-up work in connection with the clinic, and to supply sputum outfits and precautions to tubercular cases.

14. The visiting nurse work of the community has been coördinated under the Charlotte Coöperative Nursing Association and a supervising nurse employed. At present seven nurses are employed in various activities, and provision is being made for the employment of two colored nurses and a white nurse for infant welfare work.

Charlotte has had the same trouble experienced by many cities in securing proper help during last year. However, we believe we have made fair progress in health work.

Mitchell County—Dr. C. E. Smith, County Quarantine Officer

We have had less sickness in Mitchell County this last year than for five to ten years previous. School inspection was agreed upon and would have been carried out had it not been for the epidemic of influenza. We have had very little diphtheria. Just now we are having an epidemic of measles. There has been very little typhoid fever, only one or two deaths, I believe. The school inspection will be carried on next fall. I would emphasize what I had to say about the influenza and add the further fact that we had some 500 cases during the first appearance of the epidemic, with some 25 or 30 cases of pneumonia following, which ended fatally, and quite a number of cases of pneumonia, which ended in recovery, and during the second outbreak of the epidemic we had some 300 cases, with a greater pro rata of pneumonia, which was more fatal than the first, and pneumonia in the last epidemic caused about 20 deaths. No deaths from uncomplicated flu.

Montgomery County—C. Daligny, County Physician

The scarcity of infectious diseases in the county of Montgomery during the year 1918 speaks well for the sanitary condition of the county. The adoption of sanitary closets and septic tanks in our towns has nearly eradicated typhoid fever and other diseases from our midst. The screening of doors and windows to a great extent also eliminated the fly. Our people have become more conversant with the ills produced by the fly and insanitary privies, and are making strong efforts to protect themselves.

The campaign of education on sanitary topics which has been carried on for the last year is beginning to show results which are very evident.

During the year there were only three cases of typhoid fever reported in the county, and one of these was an imported one.

A severe epidemic of measles prevailed over the county from January to March, inclusive. This epidemic was followed by whooping cough, which lasted to the end of May. These two epidemics were general over the county. Only eight cases of diphtheria were reported, six of tuberculosis, five of smallpox and two of cerebro spinal meningitis.

Propaganda—Many articles were from week to week published in the *Montgomerian*, the county paper. All these articles were on the topics of sanitation and disease prevention.

School Examination—Unfortunately the school examinations did not bring the results sought for. Many of our schools closed in the latter part of 1917 on account of an epidemic of measles and whooping cough, which prevented an early examination of the pupils by the teachers. Nevertheless the examination was completed, all teachers making their reports. Owing to the meagre sum appropriated by the board of county commissioners for the treatment of defective children, this important phase of the movement failed to be put in execution, believing that it would not be fair to have some children treated and let others go untreated.

Epidemic of Influenza—From October to the last of December, and especially during October and November, the county was in the grip of a serious epidemic of influenza; 38 deaths resulting from its activities.

During the epidemic the schools were closed, also churches and all public gatherings forbidden.

Midwives—The County Board of Health passed an ordinance regulating the practice of midwifery. Twenty-two midwives were examined and instructed as to their duties and given license.

The vital statistics of the county shows that during the year 1918 there were 477 births, 352 whites and 125 colored; also 165 deaths, 111 whites and 54 colored. In comparison with the statistics of the year 1917 there were 22 fewer births and 10 more deaths.

Nash County—Dr. G. W. Botts, Health Officer

I took up the duties as health officer in Nash County November 20, 1918. The following is a brief summary of the work done since that time:

Public meetings, 26; total attendance, 1,635.
Number of letters received, 602.
Number of letters sent out, 1,255.
Number of specimens examined for hookworm, 16.
Number of diphtheria cases reported and quarantined, 5.
Number of scarlet fever cases reported and quarantined, 10.
Number of chickenpox cases reported and quarantined, 7.
Number of smallpox cases reported and quarantined, 1.
Number of cases quarantined, 23.
Other reportable diseases reported, 6.
Number of quarantinable cases visited, 16.
Number vaccinated against typhoid fever, 6.
Number vaccinated against smallpox, 517.
Number vaccinated against influenza, 7.
Number of schools visited, 46.
Number of visits to county jail, 25.
Number of visits to county home, 12.
Number of postmortem examinations, 3.
Number of lunacy examinations, 11.
Number of children examined, 28.
Number of children having defects remedied, 3.
Number of urinalyses, 54.
Number of sputum examinations, 18.
Number of persons prescribed for at jail and county home, 67.
Investigated two children reported bitten by a rabid dog.

Examined 121 applicants for permits to practice midwifery in Nash County, granting 61 permits to practice.

As a result of my clean-up campaign, I had reported to my office 3,886 yards and homes cleaned up, in the county.

Joint Board of Health of Wilmington and New Hanover County—Charles E. Low, M.D., Health Officer

It is manifestly impossible to formulate a report in five hundred words which will give a detailed account of the activities carried on for a year under the Joint Board of Health of Wilmington and New Hanover County. However, I have the honor to submit the following summary for 1918 which I trust may be satisfactory.

The work as organized under our board embraces so many activities that it should be understood at the outset that the accomplishments spoken of were not the result of my personal effort alone; in fact, most of the actual work was done under my supervision by assistants and regular employees to whom the credit belongs for such results as were attained.

The department lost by death two valued members. Dr. Arnold Stovall, the assistant health officer, died from influenza early in the epidemic, having contracted the disease in line of duty. Dr. Thos. B. Carroll, our food and dairy inspector, died suddenly at Camp Bragg while on leave from the department in the service of his country in the Veterinary Reserve Corps. The loss of these able workers was felt as a personal loss and also as a severe blow to the efficiency of the department, because their positions were vacant for about three months.

The various independent nursing forces of the city were reorganized and affiliated with the health department, a supervising nurse being put in charge. A survey of the city water supply was made with the assistance of Mr. Streeter, an experienced water works engineer detailed at my request by the United States Public Health Service. As a result of that survey much needed extensions and improvements of the plant were made. Active "clean-up" and "anti-fly" campaigns were conducted and as a part of the latter undertaking 5,000 fly swatters were furnished free and 150 flytraps were built and sold at cost. An official central organization for handling the influenza epidemic was quickly built up with the assistance of Prof. Stiles of the United States Public Health Service, the Red Cross and National Special Aid and a host of self-sacrificing citizens associating for that end. An appropriation of $30,000 was secured from the city government for mosquito control work. The detail of Assistant Sanitary Engineer A. W. Fuchs was obtained from the United States Public Health Service to supervise the work and that Service spent approximately $3,700 for salaries and appropriated $5,000 for experimental work.

The assistant health officer's report shows 1,525 professional visits to indigent of city and 245 to indigent of county; 459 cases treated at clinic held at department office (an incomplete list); 61 visits to stockade and convict camps; 79 visits to county home; 82 visits to county jail; 23 visits to schools; 11 autopsies held; 20 police calls attended; 12 visits to recorder's court; 210 smallpox vaccinations; 834 typhoid vaccinations. There were reported 21 cases of diphtheria, 76 cases of typhoid; 2 cases of scarlet fever; 250 cases of whooping cough; 268 cases of measles; 311 cases of German

measles; 37 cases of chickenpox; 41 cases of mumps and 1 case of smallpox, 617 quarantines were established and about 20 doses of diphtheria antitoxin distributed. The nurse's report shows 11,376 nursing visits; 131 school visits; 170 pupils referred for treatment; 44 visits to baby clinic and 50 infants under care.

Other departmental reports show: 783 cases referred to James Walker Memorial Hospital; 47 cases referred to Red Cross Tuberculosis Sanatorium; 6,761 laboratory examinations, including 857 milk tests and 5,266 tests of city water; 103,784 sanitary inspections; 411 plumbing inspections; 2,427 inspections of food handling places; 9,252 inspections of food animals; 12,709 loads of trash and garbage were incinerated.

Northampton County—Dr. F. M. Register, Health Officer

This report covers the activities of the Northampton County Health Department for a period of twelve months; from April 1, 1918, to April 1, 1919. It has been quite a busy year, especially on account of the influenza epidemic, and a good many plans we had mapped out went wrong on that account.

During April, 1918, the day preceding county commencement day was set apart as Health Day. Governor Bickett made the principal address. On the following day, commencement day, the health department had a float in the parade.

We inaugurated two new features in our department during the year. One was the school health officer. We asked each school to appoint two pupils from each room each week to act as health officers, taking charge of the sanitary condition of school grounds and school buildings, also reporting on the hygienic condition of the pupils. We offered a small prize to the school doing the best work. We also got an ordinance through our county health board making it a misdemeanor for a midwife to practice her profession without a permit from the county health officer. A few simple rules were formulated for the practice of midwifery. All the midwives of the county were notified that instructions would be given them at nine different points in the county, and they could attend the point most convenient. Fifty-five midwives met with us and were given minimum instructions.

During July and August we had dental dispensaries at twenty-one different points in the county. At the same time we gave typhoid vaccinations, hookworm examinations and treatments, weighed and measured babies and gave advice to the mothers. We gave out bulletins and instructions for sanitary privy building. At the same time and places the farm demonstration agent and the white and colored school supervisors were present and gave talks along their respective lines. Our party usually consisted of six persons.

During the latter part of August the farm demonstration agent, with the assistance of the health officer and others, held a three-day encampment of the one hundred and thirty-five agricultural club boys of the county, camping in tents and doing their own cooking. They were given some valuable instructions along agricultural and health lines.

In October came the influenza scourge. All the welfare forces of the county were taxed to the uttermost to mitigate the suffering of the people who were smitten with the disease. Our life extension unit, that should

have started about this time, was stopped entirely, and has not amounted to much up to the present day. We hope during the summer to push it along more effectively.

We are trying to form a Woman's Health Auxiliary for the county. This is to be composed of about six women in each school district, both white and colored. They are to keep in close touch with the county department of health, and are to give and receive aid in disease prevention.

Of course, in a report of this kind there are hundreds of things we do and small details that are looked after that we cannot mention, but which take up quite a good bit of time. The following is a brief summary of the most important things done during the twelve months passed:

Public meetings	50
Attendance	7,030
Children examined	1,276
Letters sent out	2,017
Bulletins given out	7,300
Children having defects remedied	567
Persons vaccinated against smallpox	39
Persons vaccinated against typhoid	1,961
Schools visited	75
Hookworm examinations	581
Hookworm treatments	256
Original newspaper articles	119
Babies weighed and measured	495
Contagious diseases quarantined	166
Contagious diseases visited	14
Influenza cases visited	298
Gauze masks given out	300
Sputum cups given out	100
Sanitary closets built	794
Visits to jail	4
Visits to county home	14
Visits to chain gang	3
Children examined for diphtheria carriers	130
Examined for insanity	7
Life extension examinations	27
Miles traveled	4,250
Number permits issued to midwives	55

Dr. Cooper read the following telegram from Dr. W. A. Bradsher, quarantine officer of Person County:

Roxboro, April 11, 1919.

Dr. G. M. Cooper:

Regret my absence today. We aim to make Person County an effective unit in State health work this year. Will visit Raleigh soon to get, in a way, what I am missing today.

W. A. Bradsher.

Person County—W. A. Bradsher, M.D., County Health Officer

The general health of the county during the year has been unusually good, barring the epidemic of influenza. This struck us a heavy blow. It came in two ways. One in September and October, which was very extensive and very fatal. Another in December and January, also very extensive but less fatal. We are meeting its after effects every day in the county.

We had no school inspection during the year, but conducted an anti-typhoid campaign, immunizing something over four thousand.

The quarantine system has not been as completely carried out as I would like. It is, however, being made more effective and is yielding excellent results in an educational way—in teaching the people the real facts about communicable diseases.

Our public institutions have had few inmates and they have required little of my attention.

Dr. S. A. Stevens moved that where reports are written they go into the minutes without being read. This motion was seconded. Dr. Wickliffe offered an amendment to the effect that those present should read their reports. No action was taken on the motion.

Dr. Cooper asked that a vote of thanks be given to Miss Hayes, Dr. Mudgett, and Dr. McBrayer for the afternoon's entertainment. A motion was put to this effect and passed unanimously.

NIGHT SESSION

Pitt County

Dr. C. P. Fryer, Health Officer.

The educational work in Pitt County consisted of public meetings, which were held throughout the county. The lantern slides were used with good success, as people liked the illustrated picture talks. Talks were made to the school children along the lines of sanitation and hygiene, special stress being laid on oral hygiene, and the teachers urged to talk to the children on these subjects. Letters of an educational nature and literature on prevention urging their coöperation were sent out to the people. Prevention methods were discussed at all our public meetings and the people urged to report all cases of infectious diseases.

Educational work is very important and people have to be educated up to a certain standard before they can realize how disease can be prevented. As a result of the educational work, we have been able to organize active health clubs among the women in the following towns: Ayden, Bethel, Farmville, Grifton and Grimesland. These clubs are taking up the local conditions in the respective towns. Special attention is given to the anti-typhoid vaccinations, life extension, physical defects of school children and better sanitary conditions.

Number of public meetings, 37; schools, 16; attendance, 3,858; others, 21.

Number of letters sent out, 2,379.

Number of newspaper articles published, 121.

SOIL POLLUTION

The soil pollution work was not as successful as we had anticipated. People were very busy with their tobacco crops, which promised such financial returns that they would not, in a great many cases, quit work to build sanitary toilets. High wages, scarcity of labor and material are other factors that entered greatly into the result.

Number of sanitary closets built	425
Number of specimens examined	634
Number of specimens positive for hookworm	171
Number of treatments given	148

QUARANTINE UNIT

This is a very important unit, as we have a method of controlling the spread of disease. The physicians and householders have been very good in reporting quarantinable and reportable diseases.

Whooping cough	176
Measles	28
Diphtheria	111
Scarlet fever	5
Typhoid fever	113
Smallpox	26
Infantile paralysis	1
Epidemic meningitis	4
Ophthalmia neonatorum	1
Chickenpox	6
Mumps	2
Pneumonia	4
Tuberculosis	1
Gonorrhea	2

SCHOOL UNIT

The physical examination has revealed many facts. Physically defective children do not do as effective work in school as the nondefective child. Many of these children are repeaters in their grades, and teachers are often blamed while the physical defects are holding the child back. Parents are realizing the defective child should be treated.

Number of schools visited	47
Number of examination cards received	3,568
Number of children examined	1,229
Number of children having defects remedied	157

TYPHOID CAMPAIGN

One of the most important results is the typhoid campaign. For the years 1914-15-16-17 the death rate was 40.1 per cent and 1918 death rate 5.0 per cent, which shows a decrease of 35 per cent. We did not find one member of a household who had contracted the disease from a patient. Decrease in the number of cases was due to education and the anti-typhoid inoculation campaign.

Economic value of protection. One bank in our county asks the following of a man who makes application for a loan. Have you and your family been vaccinated for typhoid fever? Have your children been treated for hookworm? Have you a sanitary toilet? Have you a good water supply? This bank, after an experience, found that lending a man money who died from typhoid was a liability, while the man and his family who were protected was an asset.

VACCINATIONS

Number vaccinated against typhoid fever	3,362
Number vaccinated against smallpox	650
	4,012

CITY REPORT

Market inspections	153
Dairy inspections	2
Sewer connections	199
Number of sanitary privies cleaned	1,329

Randolph County—C. A. Hayworth, County Physician and Quarantine Officer

I was only recently elected county physician and quarantine officer for our county—January, 1919—so my report will necessarily be brief.

As county physician I have looked after the health of the inmates of the county home and county jail, among whom there have been no epidemics, but many of the inmates of the home frequently require medical attention, due to the infirmities of old age.

Our county authorities are now planning the erection of a modern county home which can be kept sanitary.

Upon my recommendation, sanitary drinking fountains have been placed in the court house, in place of the common drinking cup formerly used.

I have procured and placed at six different points in the county the antitoxins and vaccines furnished by the State Board of Health, in order to make them easily available to the citizens of the county, and have used the press, posters, and letters to notify the public where and of whom they may obtain them free.

As quarantine officer I have endeavored to perform the duties of this office as the law requires. We are now having an epidemic of measles over a portion of the county, and six cases of smallpox were reported during the month of March. Influenza is again mildly prevalent in two sections of the county.

I want to add to this report that we have just recently completed arrangements, under the guidance of Miss Ehrenfeld, of the State Board of Health, for the employment of a public health nurse.

Robeson County—Dr. W. A. McPhaul, Health Officer

I—EDUCATIONAL

Number of public meetings: Schools, 52; attendance, 5,249; others, 37; attendance, 3,419.

Number of letters sent out, 3,627.

Number of newspaper articles published, 120.

II—SPECIAL REPORT OF SOIL POLLUTION UNIT

Number of sanitary closets built, 756.

Number of specimens examined, 62.

Number of specimens positive for hookworm, 35.

Number of treatments given, 150.

Number of field workers employed, 8.

Total number of days worked by field force, 381.

Total amount paid field worker, $1,379.70.

III—SPECIAL REPORT OF QUARANTINE UNIT

	Reported and quarantined	*Visited*
Whooping cough	168	2
Measles	56	14
Diphtheria	34	15
Scarlet fever	2	0
Typhoid fever	117	2
Smallpox	65	17
Infantile paralysis	2	0
Epidemic meningitis	1	1

IV—SPECIAL REPORT OF SCHOOL UNIT

Number of schools visited, 56.
Number of examination cards received, 9,455.
Number of children examined, 2,128.
Number of children having defects remedied, 1,602.

V—SPECIAL REPORT OF LIFE EXTENSION UNIT

Number of applications received, 985.
Number of physical examinations made, 821.

VI—SPECIAL REPORT OF VACCINATIONS

Number vaccinated against typhoid fever, 2,634.
Number vaccinated against smallpox, 583.

VII—OTHER ACTIVITIES

Number visits to county home, 20.
Number visits to county convict camp, 12.
Number visits to county jail, 78.
Number visits to paupers (other than county home), 66.
Number of paupers given free treatment, 58.
Number of examinations made under child labor law, 108.
Number of postmortem examinations, 2.
Number of examinations for commitment to insane asylum, 42.
Number of meetings with town officers concerning health work, 6.
Number of pieces of literature distributed (over), 28,000.
Number of dog heads sent off for examination, 6.
Number of samples of water sent off for examination, 9.
Number of meetings of midwives held, 4.
Number of lectures given to midwives, 4.
Number of sanitary ordinances passed by the small towns at the suggestion of the county health officer, 7.

ROWAN COUNTY—DR. A. J. WARREN, COUNTY HEALTH OFFICER

The activities of the Rowan County Health Department since last April can be classified under six separate headings, namely:

1. Educational
2. Quarantine
3. Schools
4. Vaccinations
5. Soil pollution
6. Miscellaneous

I. Under the head of "educational" the following has been done: a total of ninety-four public meetings have been held for the purpose of lecturing and discussing public health questions. These meetings were attended by 9,496 people.

A total of 3,732 personal and circular letters have been mailed in the interest of the public health of the county.

A total of 20,045 bulletins, pamphlets and leaflets have been distributed to the citizens of the county. The major portion of these were prepared by the State Board of Health; the others were prepared by the health officer, with the exception of a few hundred that were furnished by the Metropolitan Life Insurance Company.

II. Under the division of "quarantine" a total of 620 cases of contagious diseases have been reported and quarantined according to the regulations prescribed by the State Board of Health. Of this number 233 were visited personally. Sixty-three of these visits were made at the homes of cases of typhoid fever. The diseases quarantined were distributed as follows:

Whooping cough	208
Measles	212
Diphtheria	24
Scarlet fever	30
Typhoid fever	103
Smallpox	21
Chickenpox	30
Meningitis	1
Infantile paralysis	1

III. Under the heading of "schools" come the activities of the medical inspection; and in this connection the following has been accomplished:

Examination cards received	887
Children examined	1,170
Defects remedied	978

Rowan County has the distinction of being the first county in this or any other State, so far as I know, to install a permanent immobile dental infirmary that gives free dental treatment to her school children, rural and urban, between the ages of six and twelve.

IV. Under the division of vaccinations the following has been done:

Vaccinated against typhoid	4,665
Vaccinated against smallpox	428
Vaccinated against whooping cough	10

Of the total vaccinated against typhoid, in 2,981 instances a triple typhoid lipo-vaccine was used. The systemic reaction from this lipo-vaccine was about the same as from the three-dose method of administration. The local reaction is more severe and lasts for a longer period of time, and in a few instances the local induration was so severe as to result in abcess formation.

V. Under the head of "soil pollution" the following results have been accomplished: 1,973 specimens of feces have been examined for intestinal parasites. Of this number, 89, or four per cent, were found to be positive for hookworm. The percentage of ascaris infection was about seven per cent. A total of 118 treatments have been given for hookworm and ascaris.

One thousand, nine hundred and eighty-four homes have constructed sanitary privies. Of this number, 1,804 were of the pit type, while 180 were septic tanks.

VI. The miscellaneous work has been that of looking after the county institutions, which number three—the jail, with an average of fifteen occupants; the chain gang, with an average of thirty-six, and the county home, with an average of sixteen—the examination for the commitment of the insane, and the hundred other miscellaneous things that county health officers have to do.

Sampson County—E. T. Hollingsworth, M.D., Health Officer

Some days ago I received from the secretary of this association a letter, asking me to make my report for the year, which should not exceed 500 words. It was my purpose in preparing this report to do this, but it is very hard to do, and include all important things that I have accomplished.

The population of the county is 32,244, with about 10,000 negroes. The county contains about 921 square miles and is divided into 16 townships. Clinton is the largest town, with a population of 2,000; therefore, 80 per cent of the population is rural.

In making this year's report I group the work under five heads, as follows:

1. Educational work
2. School work
3. Life extension unit
4. Prophylactic
5. Quarantine

In the educational unit, I have tried to interest the public mind in health matters for the past year. This included sending out 300 letters and 500 pamphlets to citizens in the county, publishing 12 original articles and 10 press articles in the county papers and making 50 talks to an attendance of 5,000 people.

The school unit began in the fall of 1918, during the teachers' institute, and also at the county teachers' meeting, where I discussed with the teachers plans and methods for making physical examinations of school children. Following these meetings I visited 44 schools in session and talked direct to pupils relative to their health and organized health clubs, which required daily inspection of children and school premises. During that time, I examined 500 school children, found 178 defective and have had 50 of these treated.

March 1st, immediately after I completed a post-graduate course at the State Sanatorium, I began the life extension work; since then I have received 15 applications for examinations and have examined nine, and installed five sanitary privies, examined 56 specimens for hookworm, and given 62 hookworm treatments.

During the year I have vaccinated against the following diseases:

Whooping cough	60
Influenza colds	71
Smallpox	121
Typhoid fever	6,000

I have had reported to me, and quarantined, the following contagious diseases:

Measles	102
Diphtheria	22
Whooping cough	33
Chickenpox	4
Scarlet fever	11
Cerebro spinal meningitis	4
Epidemic sore throat	4
Bacillary dysentery	1
Smallpox	3
Typhoid fever	28
Broncho pneumonia	27
Ophthalmia neonatorum	1
Gonorrhea	1

I have also made 36 visits to see these contagious diseases.

County home, visits	80
Jail, visits	16
Convict camp, visits	32
Outside poor, visits	100

I have examined 8 insane persons for commitment to the State Hospital. In the absence of the county coroner I was appointed temporary coroner, and conducted one coroner's inquest. I have fumigated ten houses in which deaths occurred following contagious diseases. During the year I was examining physician for the local exemption board, and examined 800 men for the army, and have traveled 8,515 miles on the county roads.

October the 5th the county was organized, with a unit in each township, to fight influenza. A soup kitchen was established and 60 quarts sent out daily. Automobiles were sent to all parts of the county with masks and Dobell's solution, gratis, with instructions.

Swain County—Dr. A. M. Bennett, Quarantine Officer

We employed a nurse; got up clubs for four days' work; operated on 80 children for removal of tonsils and adenoids, Dr. McCracken doing the work. Successful operations, all patients doing nicely.

Union County—S. A. Stevens, M.D., Quarantine Officer

The usual routine work has been done during the past year. On the whole, the outlook for a wider interest in health matters is brighter.

The reporting of cases of contagious diseases has perhaps not been as thorough as it would have been under normal conditions. The thinning of the ranks, due to war and the unusual amount of work to be done by these few by reason of the epidemic of influenza during the past winter, left the physicians but little time to attend to outside matters.

Fortunately, there seemed to be a decrease in the incidence of the reportable diseases during the epidemic—this being due perhaps to the closing of many of the schools and the quarantine measures resorted to to control the influenza epidemic.

The following is a summary of the report of diseases from April, 1918, to April, 1919:

1918	*Whooping Cough*	*Scarlet Fever*	*Measles*	*Diph.*	*Typhoid*
April	32	1	1	1	0
May	143	1	1	1	2
June	61	0	2	0	0
July	116	2	0	2	5
August	85	2	0	0	19
September	45	11	0	3	5
October	2	2	0	2	2
November	10	2	0	2	1
December	4	0	0	1	0
1919					
January	0	1	3	1	1
February	0	1	6	0	0
March	0	1	5	2	1
Total	498	24	18	15	36

Wake County

(Announcement by Dr. Cooper)

Dr. Waller is down tonight on the program with paper on "Results of Extra-cantonment Work at Camp Polk," and this embraces the report he would ordinarily make.

Washington County—Dr. W. H. Ward, Quarantine Officer

I am sorry I have no written report; I did not know it would be possible to attend until thirty-five minutes before train time. I tried to do good work.

We had a great many cases of measles; 16 or 18 cases of smallpox; two epidemics of influenza and I was the only physician in town (the rest gone to war). I have not done as much work visiting the schools, etc., as I would like to have done, because I had so many sick people on my hands, but I hope to do better work in the future.

Health Department, City and County of Wilson

L. J. Smith, M.D., Health Officer

Staff:
- Miss Harriett J. Sherman, R.N.
- Mrs. S. D. Harrell, R.N.
- L. G. Whitley, Field Worker
- B. J. Ferguson, City Sanitary Inspector
- Miss Lora Smith, Office Assistant

Two important events have materially influenced the amount and the character of work accomplished by our department for the past year, viz.: The world war and the epidemic of influenza. The war caused us to realize the necessity and importance of the conservation of human lives, while on the other hand it materially handicapped our progress by making it almost impossible to secure labor and material to carry out the program outlined. The epidemic of influenza has been the most potent factor in popularizing the work of our department. It has brought about a more sympathetic understanding among all classes of people, teaching us the broader and more comprehensive meaning of the word *Service*. However, three months of our time, October, November, and December, were devoted entirely to the relief of influenza victims, in which time none of the usual activities were carried on.

Following is a detailed report of results accomplished under the different unit headings:

I—EDUCATIONAL

Forty-three public meetings at schools and other places, with an attendance of 2,665 people. Three thousand letters were written and numerous handbills were written and circulated on "What you can get free from your Health Department," on "Life Extension Work," on "Free Dental Work for School Children," etc.

II—SOIL POLLUTION UNIT

We secured the enactment of a county-wide sanitary privy ordinance; secured the coöperation of the banks and time merchants by having them incorporate the following questions in the questionnaire for applicants applying for a loan or credit. First, "Have you and your family been vaccinated against typhoid fever?" Second, "Have you a sanitary privy at your home?"

We believe the moral effect of these two questions, even if they are not adhered to in every case, will be of untold benefit in carrying out the program of the Health Department.

Number of sanitary privies built	95
Number of specimens examined	102
Number positive for hookworm	30
Number of treatments given	24
Number of field workers employed	1
Number of days worked by field force	23

III—REPORTS OF QUARANTINE UNIT

The quarantine work has been carried on very successfully and is becoming more successful as the physicians and laymen become familiar with the real purpose of quarantine regulations. We have done much to bring about a better understanding among the physicians through the County Medical Society. Only three physicians have been convicted for failure to report communicable diseases, and these were not wilful violators of the law, neglect and indifference being their sin. Influenza was made a quarantinable disease by our County Board of Health and this has added much work under this unit.

IV—SCHOOL UNIT

We are proud of the work accomplished in the schools of Wilson County. The good results were accomplished through and by the direction, coöperation and assistance of Dr. G. M. Cooper, State director; Prof. C. L. Coon, superintendent of schools, and his efficient teachers, and Dr. J. V. Turner, the dentist in charge of free dental work.

ITEMS:

Number of schools visited	85
Number of examination cards received	5,462
Number of children examined by health officer	2,173
Number of children having defects remedied by eye, ear, nose, and throat specialists	70

DENTAL REPORT:

Number of places worked	20
Number of children examined	1,219
Number of children treated	914
Number of lectures given	22

Probably the most interesting and unusual work done in the schools was a thorough physical examination of 150 boys from the age of 12 years and over conducted by request of the physical director of the Y. M. C. A. Among other defects found were 38 boys who needed circumcision very badly. Through the efforts of the Y. M. C. A. secretary and myself, we have so far had 15 of these boys operated on. Mention is made of this special feature of the school work because: First, the family physician is rarely, if ever, called upon to make an examination for this defect. Second, the parents are almost in entire ignorance of the existence of this condition and its ill effects. Third, it is in direct line with venereal disease prevention. Fourth, it is probably the most neglected field of disease prevention, therefore we wish to call the attention of all interested in preventive measures to this important field. Fifth, it is one of the best methods of approach to teach young boys the principles of sex hygiene.

The superintendent of schools has already made great progress in consolidating the public schools of Wilson County into ten up-to-date graded schools. This is being done by means of motor buses and school wagons to transport the children to and from school. Three motor buses and three wagons are now in use. When these schools are consolidated, public health work in Wilson County will be simplified and made more efficacious.

V—REPORT OF LIFE EXTENSION UNIT

Number of applications received.....218
Number of physical examinations made.....178

This work was cut short by the appearance of influenza just at the time when we were doing the most efficient work. No work we have conducted showed more evidence of greater possibilities for good among the adult population. The most notable defects found were pyorrhea alveolaris (Rigg's disease), probably 75 per cent of applicants examined; high blood pressure and suspected tuberculosis. By special arrangements with Dr. McCain, he came to Wilson on March 27th and examined 14 of the suspected cases of tuberculosis and, according to his findings, 50 per cent were found positive.

VI—REPORT OF VACCINATIONS

Number vaccinated against typhoid fever.....2,427
Number vaccinated against smallpox.....2,453

This work is carried on throughout the year. Lipo-vaccines have been used almost exclusively since last August. No untoward results have been observed. In fact, most people call for the "one dose" vaccine in preference to the "three dose," as they express it.

VII—SPECIAL REPORT OF CITY UNITS

A—*Sanitary Inspector:* This officer has performed his duties most satisfactorily. He quarantined 160 homes; made 13,500 inspections; sanitated 245 homes; abated 310 nuisances; condemned and destroyed 5,350 pounds of meats; brought 29 indictments with conviction for failing to comply with sewer regulations; served 275 written notices; posted 1,600 placards and condemned and filled up 12 wells.

B—*Nurse's Report—City Visiting Nurse:*

Number of visits made.....1,100

County Educational Nurse: This service was begun March 1st, 1919. Her duties are divided into three special units, with special emphasis on infant hygiene and child welfare, viz.:

School lecture and inspections.
Tuberculosis work.

Added to these duties she will be expected to do soil pollution work throughout the year.

VIII—SPECIAL LABORATORY REPORT

Number of complete milk analyses	93
Number of sputum examinations for tuberculosis	25
Number of blood examinations for malarial parasites	9
Number of specimens feces examined for parasites	102
Number of tests for butterfat in mothers' milk	20

Milk analyses are done once a month and the complete reports are published in local papers. This, we believe, has done much to bring about a marked improvement in our milk supply. The bacterial count for the first month showed an average of 90,000 per c.c., while the last count, in March, showed an average of 6,500 per c.c.

IX—FINANCIAL STATEMENT

Total expenditures for the year 1918		$6,241.04
Total estimate of cost of work if done in private practice:		
2,427	Typhoid vaccinations @ $1.50	$ 3,640.50
2,453	Smallpox vaccinations @ $1.00	2,453.00
328	Complete physical examinations @ $5.00	1,640.00
2,020	School children examined by health officer @ $1.00	2,020.00
93	Complete milk analyses @ $5.00	485.00
102	Specimen feces examined @ $1.00	102.00
8	Blood examinations for parasites	16.00
25	Sputum examinations for tuberculosis	50.00
914	School children treated by dentist	1,399.00
	Total	$12,805.50

At least 50 per cent of the work carried on by our department is not included in the above tabulation.

YADKIN COUNTY—V. F. COUCH, M.D., QUARANTINE OFFICER

During the past year I have reported the following cases: Mumps, two; whooping cough, eleven; septic sore throat, one; cerebro spinal meningitis, one; chickenpox, one; cholera infantum, eleven. Reported and quarantined: Measles, ten; scarlet fever, fourteen; diphtheria, eight. Reported and placarded: Smallpox, eight; typhoid fever, thirty-four.

I have visited twenty-two homes with reportable diseases, vaccinated twenty-eight persons against smallpox, made three examinations for commit-

ment, visited the county home twenty-six times, examined seven inmates of the county jail and disinfected courthouse and jail three times. (No convict camps in Yadkin.)

YANCEY COUNTY—J. B. GIBBS, M.D., QUARANTINE OFFICER

In our county we attempt nothing during the winter months except the regular routine work outlined by the State Board of Health. During June and July I worked half time, and it was intended that I give all my time to the school inspection and health work during the four months that our schools were to be in session. During August and September we completely immunized twenty-two hundred against typhoid, and gave one or two doses of serum to about a thousand others. About one hundred school children had been examined and work on their teeth commenced when the epidemic forced us to close the schools, and during the rest of the year influenza demanded our entire attention. In addition to this, several articles were published in the county paper, several health talks were made by the ministers, teachers, and health officers, and several hundred health articles distributed throughout the county.

In conclusion, I wish to say that the people generally showed an intelligent interest in what we were attempting to do, the teachers gave cheerful coöperation, and our county commissioners readily made all appropriations necessary to carry out the work.

DR. B. E. WASHBURN, Director of Bureau of County Health Work, State Board of Health, Raleigh: I am sure that we were interested in the talk of Mr. Hedrich, in which he outlined the American Public Health Association's coöperative plan for work with this association. As we decided upon the plan of coöperation I would like to make a motion that a standing committee be appointed to confer with representatives of the American Public Health Association, with power to act with regard to our affiliation with them.

DR. W. S. RANKIN: Mr. Hedrich asked me to place on the table these application blanks, for the convenience of any member of the association who may care to use them.

Dr. Washburn's motion was repeated, seconded, and carried, and the following committee was appointed:

Dr. W. S. Rankin, *Chairman.*
Dr. C. C. Hudson.
Dr. L. B. McBrayer.

THE PRESIDENT: The next number on the program is a paper by Dr. Washburn, "The Dog in the Manger: A Modern Fable."

DR. B. E. WASHBURN: *Mr. Chairman, Ladies and Gentlemen*: Several months ago, when the Secretary was making up the program, he

asked that I prepare a paper with the title: "The Dog in the Manger: A Modern Fable." The intention was to make it an exhortation to some of our backward counties which could provide but have not provided public health work. When the paper was prepared the dog appeared too ferocious, so thinking it might be misunderstood, and instead of encouraging health work might create misunderstanding, and believing it would be better to prevent any suggestion of hard feelings, I beg to be excused from appearing on the program tonight.

It was suggested that the paper might be read and not appear in record of proceedings, but Dr. Washburn said that he did not have the paper.

RESULTS OF EXTRA-CANTONMENT WORK AT CAMP POLK

Capt. C. E. Waller, P. A. Surgeon, U. S. Public Health Service

The activities of the Public Health Service in the Camp Polk Extra-cantonment Zone began about the middle of September, 1918, when a preliminary survey of the area about the site of the proposed camp was made to determine the extent and character of the district over which it would be necessary for the Service to establish sanitary supervision for the protection of the health of the troops, to ascertain the status of existing health organizations and sanitary conditions in this district, and to establish a satisfactory working arrangement with the local authorities for the operation of proper sanitary control of the zone.

The area decided upon included two counties, Wake and Durham, comprising in the aggregate about 900 square miles, with a population estimated at 130,000.

Wake County employed a part-time superintendent of health at $2,000 a year, whose principal duties consisted in looking after the sick in the public institutions of the county. Some progress had been made in school sanitation and in vaccination for typhoid fever; aside from these practically no other activities had been undertaken. The city of Raleigh was spending about $6,000 a year on its health department. Of this amount, $1,800 was required for the salary of a part-time city physician whose official duties consisted in looking after the indigent sick of the city; $1,500 went for the salary of a registrar of vital statistics—also sanitary inspector and executive for the health department—whose duties consisted principally in performing the clerical work of the office, placarding, fumigating, etc.; $1,500 paid the salary of a milk and meat inspector; while an additional $900 paid an employee who inspected "back lots," etc. In other words, the county and city together were spending about $8,000 a year, apparently for the protection of the

public health, but really getting very little actual preventive work out of it. Both had a high death rate from preventable diseases, and sanitary conditions showed urgent need for more efficient health work.

Durham County was found to have a very well equipped health department, operated jointly by the county and the city of Durham at an expenditure of about $10,000 a year. Study of the organization showed the need, however, of several additional employees and better transportation facilities, to enable the department to take up important lines of work not then being carried on.

Carrying out the policy of the Public Health Service toward the strengthening or building up of local health organizations in extra-cantonment zones wherever possible, in order that permanent good might be the result of the work, plans were made, after consultation with the State and local authorities, for the temporary assumption of sanitary supervision of the district by the Service; for the securing of an increased personnel and adequate transportation facilities for the Durham County organization; and the construction of a permanent joint city-county health organization for the city of Raleigh and Wake County. Accordingly, estimates of funds needed for the remainder of the fiscal year to maintain an organization consisting of a health officer, one bacteriologist, one milk and meat inspector, two sanitary inspectors, six nurses and one clerk, with three automobiles and two motorcycles, were submitted to the local authorities in each county; $10,000 was secured from Durham County for enlarging the existing organization, bringing the annual appropriation for health work in that county to $20,000. Five thousand dollars each was appropriated by Raleigh and Wake County for the maintenance of a joint local health department for six months, equivalent to an annual expense of $20,000. At the same time an agreement was secured from the authorities of Raleigh and Wake County pledging their support of a plan for the creation of a permanent organization when the State Assembly should meet in January. An additional $20,000 was appropriated jointly by Raleigh and Wake County for antimalaria work in a zone contiguous to the proposed cantonment, for permanent operations to be carried on in 1918 and maintenance through the year 1919.

The Public Health Service was asked for, and provided, an officer to assume temporary supervision of the administration of sanitary affairs in the district, a medical officer for assignment to each county for the organization of school and communicable disease work, a sanitary engineer for supervision of mosquito control operations, an officer to take charge of the rural sanitation work, two other officers to organize

milk control and instruct the inspectors in general sanitation, and one public health nurse to assist with the organization of the communicable disease work.

The work was actively begun about October first, but, with the exception of the mosquito control operations, little progress was made until the first of November as a result of the influenza epidemic. Nearly all activities other than civilian relief were suspended for over a month and it was with considerable difficulty that employees for the two health departments were secured.

The results of the work, as would be expected, owing to the short period over which it has extended, are as yet more or less intangible and can hardly be appreciated at the present time, and it is my purpose to acquaint you briefly with some of the details of the work which we have done, leaving the discussion of actual results, possibly, for another time.

For Wake County the construction of practically a new organization was required. The registrar of vital statistics for the city of Raleigh was removed from the health department by the city authorities, and the medical work for the city and county, separated from the health work, continued to be carried on by the city and county physicians. The city milk inspector was retained. With the Service officer in charge acting temporarily as health officer, an organization consisting of one bacteriologist, six nurses, two sanitary inspectors and one clerk has been built up for the city and county. Two automobiles and one motorcycle have been provided for transportation of these employees. The department is now quartered in the county court house, easily accessible to the public, and provides Raleigh and Wake County with a health service 24 hours a day.

Medical inspection of school children has been in progress since January. The initial examinations are being made by four nurses, under the direction of a medical officer. Children found or suspected to be defective by these nurses are reëxamined in groups by the above officer, and notice is then sent to the parents. A number of parents' clubs have been organized, principally for the purpose of stimulating interest in the correction of defects, and the results have been very encouraging. In one school in Raleigh 75 per cent of the defects which could be corrected have been remedied since the work was begun. This inspection will be followed up during the coming summer by the nurses, who will be assigned to different districts throughout the county.

The communicable disease work has been organized under the direction of a Service medical officer. Two nurses, who act as quarantine officers, are engaged in visiting cases. They establish isolation and

quarantine, see that proper prophylaxis is maintained, and release the cases at the proper time. Their work is confirmed by the medical officer whenever necessary, and especially when there is doubt with regard to the diagnosis. In addition to the report card a case record has been instituted, composed of a card for each case, containing all available information, including epidemiology, disposition of contacts, etc. In this way special studies can be made with relation to milk and water supplies, etc. Spot maps now in use show the current prevalence of the more important diseases.

Through coöperation with the State Laboratory of Hygiene, advantage was taken of available facilities and a laboratory service established by the placing of the bacteriologist of the county health department in the State laboratory. A thoroughly modern and adequate laboratory service was thus secured without delay and at minimum cost. A comprehensive diagnostic service including several branches of serology has been offered to the local medical profession, and an incubator, with a supply of free culture medium, has been placed in one of the Raleigh drug stores, in order to facilitate quick service on diphtheria work. Arrangements have also been made with practically every druggist in the county for the distribution of the diphtheria antitoxin manufactured by the State laboratory, at cost price, which makes this biological product available to the public at 25c a dose, whether the number of units be 500 or 10,000, the price being merely the cost of the syringe. Daily examinations of the water supply of Raleigh are now being made, where only three or four examinations a month were made before. The water supplies of every hotel, restaurant and soda fountain in Wake County have been examined and will henceforth be continually under supervision. Evidences of pollution thus found have led to the improvement of the sanitation of a number of public wells.

A comprehensive survey of the milk situation in Raleigh was made in October by a Service officer. This survey showed a serious shortage, which could be remedied only by bringing in more distant supplies. As a small beginning a pasteurizing plant was established, through the coöperation of the State Agricultural College and the State and Federal Service, who desired to use the plant for demonstration purposes, primarily for the purpose of supplying milk for the camp and for public eating places. It has increased the supply of milk in Raleigh by about 100 gallons a day, thus diverting a part of the wholesale supply directly to the consumer. In the meantime efforts have been directed toward the securing of adequate pasteurizing facilities for Raleigh, as a result of which a local ice cream manufacturer has been interested in a pas-

teurizing plant which should give the city an abundant supply of safe milk within a short time.

While the control of other food supplies has not yet been instituted as planned, on account of the lack of adequate local regulations, inspection of food-handling establishments has been carried on with very satisfactory results. The use of sanitary paper cups has been enforced in every soda fountain in the city and county, and the handling of eating utensils, foods, etc., in restaurants has been considerably improved.

An intensive sanitary survey of the city of Raleigh is now in progress and connection of premises to the sewer system where possible is being enforced. A preliminary survey has already been made for the purpose of determining the needs of the city in the way of sewer and water line extensions and recommendations have been made to the city authorities. An ordinance requiring the installation of a can privy system in portions of Raleigh where sewers are not available has been passed and its provisions are now being carried out. A survey of the water supply of the city was made shortly after the work was started, as a result of which chlorination was recommended and has been instituted; the bacteriological control on the water shows very efficient results from this procedure.

A survey of rural homes in the county has been in progress since December and several of the smaller towns have become interested in the possible installation of sewer and water systems. Expert advice of the Service sanitary engineer has been furnished to these communities, where requested. Regulations requiring the installation of sanitary means for the disposal of excreta in every home in Wake County have been passed by the county board of health, and the carrying out of these regulations has begun.

Mosquito control operations have been carried on since September in the city of Raleigh and in a zone one mile in depth adjacent to the city, comprising sixteen square miles of territory. This work has included the draining of ponds and swamps and the clearing of the edges of running streams. All of the permanent work to be done in the city before the advent of the next breeding season has been accomplished, while about 80 per cent of like work in the one mile zone adjacent has been completed. Plans are being made for demonstrating maintenance work during the coming season, including clearing, oiling, and the use of minnows for the destruction of larvæ.

From the twentieth of October to the tenth of November practically the entire organization was engaged in local influenza relief measures. The Service organization assumed the direction of this work, aided by

local civic organizations and private citizens, who also provided the funds required for the financing of the project. Three emergency hospitals were organized and maintained for about three weeks, and medical aid, medicines, and food were supplied to many individuals and families who could not be cared for in the hospitals. A class for the instruction of volunteer nurses was also organized and maintained during the early part of the epidemic.

What is regarded as the most important result accomplished in Wake County has been the securing of legislation this spring creating a joint city-county board of health for Wake County and Raleigh, and providing for a full-time health officer and a permanent organization. The commissioners of the city and county have agreed to a program beginning July 1, when the Public Health Service retires from the field, for perpetuating the work which has been started, at an annual expenditure of $10,000 each.

To the Durham County health department have been added two nurses, two sanitary inspectors, a bacteriologist and a clerk, thus bringing the organization up to the desired strength. The department now owns three automobiles and two motorcycles for transportation of its employes.

Medical inspection of schools has been extended to the rural part of the county and enlarged considerably in its scope, this work in both the city and county having been placed temporarily under the supervision of a Service officer for the purpose of organizing and training the force of four nurses now available for school inspection, along lines similar to those being followed in Wake County. The communicable disease work of the department has also been systematized and increased in its scope.

The securing of a bacteriologist has made it possible for the milk inspector, who formerly was obliged to do the laboratory work, to now give his entire time to the sanitation of milk and meat supplies. Regulations for the control of food supplies, including the requirement of physical examination of employees, have been promulgated and are being enforced, along with other sanitary work, by the two inspectors who have been added to the organization.

An ordinance has been passed establishing a can privy system for the disposal of excreta in portions of the city of Durham where sewers are not available. Work has been begun on the installation of sanitary can-type privies in the city, and a house-to-house canvass of rural homes, as part of the rural sanitation demonstration in the county, is in progress.

Acknowledgment is made, with appreciation, of the valuable aid which the State and local authorities, the press, and many public spirited citizens have rendered in helping us to carry out what has been accomplished.

OVERSEAS OBSERVATIONS REGARDING PUBLIC HEALTH

Lt. Col. Chas. O'H. Laughinghouse, Greenville, N. C.

Mr. Chairman, Ladies and Gentlemen: Ah, but I wish I had a dog like that one Dr. Washburn has!

Several days ago Dr. McBrayer and Dr. Cooper wrote me that they were thinking of placing me on the program for some subject which they did not mention. I wrote them immediately, telling them that in all probability I would not be here, and on account of the fact that I have just gotten back in the States I was not in position to prepare a paper. I did not know I was on the program until a few minutes ago.

There is a good deal to say, however, concerning overseas observations relative to public health. The first and most striking thing I saw was on my journey overseas.

I went over with three organizations—Base Hospital 85, an artillery organization and an infantry division—in the Steamship *Canada*. It was rather an antiquated ship, and accommodations for the comfort and safety of the men were decidedly meagre and unsatisfactory. It was my misfortune to be assigned Ship Surgeon, so immediately I began plans by which I could keep not only men but officers out on deck just as many hours during the day and night as it was possible to keep them there. We had a very rough voyage and a number of men had never seen a body of water bigger than a bath tub, and some of them not that size. I remember one fellow lying down on deck, sick as could be. I passed by and said: "Son, how are you feeling?" "I don't know, I have quit feeling." I told him to brace up, he was working for his Country. He said: "Yes, sir, I know I am doing this for love of Country, but if ever I get back to the States I ain't never going to love no other damn country."

Another fellow had vomited everything but his shoes. I was trying to comfort him and he said: "I am just thinking about the Germans fighting for the freedom of the seas; so far as I am concerned they can have the whole damn sea!"

But, with the exception of seasickness, we did not have a single man report on sick call from the time we left the States until we arrived in Glasgow, and I believe that it was due to the fact that everything that could be done as to ventilation was done and there were officers

constantly on guard in all parts of the ship to see that ventilation was as perfectly and consistently carried out as conditions would permit.

We left Glasgow for Southampton. When we got to Southampton we found the whole place absolutely stampeded on account of the fact that one of our biggest transports, the Olympic, had come into Southampton with 1,800 sick. Neither Southampton nor the Army had facilities to take care of those 1,800 men, and my unit was held for the purpose of handling the ship's sick. We had a job getting those 1,800 men out of the ship's hold, and while it was a modern ship and was looked upon as one of the best that sails the Atlantic, the men were shipped without proper consideration as to ventilation. That was the first and biggest public health observation that came to me.

Another striking thing that came to me was this: Base Hospital 85 had 216 enlisted men. They left Fort Sill, Oklahoma, with a clean venereal record; they spent almost five months in Paris; they were given every privilege that it was possible to give under the circumstances. I left them the 3rd of February, or somewhere along there. The venereal record among these 216 men was one, and only one. That is a public health observation that struck me very forcibly. Those men were not preached to; they were not told whether or not they could get to heaven. They were simply told that a fighting man has to be a clean man, and they were told that if they were anything other than clean they disgraced the very thing for which they were fighting. They were told also that they were not fit to be fathers of American children unless they were clean men. That was all the preaching they had. The venereal record of my unit is a little bit better than the record of the American army taken as a whole, but not very much. So much better was the venereal record of the American army than that of the American citizens at home that the soldier can come home and look his civilian associates in the face without being ashamed.

This venereal disease prevention is a public health problem that the State of North Carolina has got to handle from now on. If my information is correct, the Legislature has put it absolutely up to the medical profession as to whether or not we shall have a venereal record fit for a clean people. If we fail to meet the obligation which the State has put upon us, we are morally liable to the citizens of the State and responsible for the futures of the syphilitic and gonorrhœal children, therefore as men we must come up and make this venereal record even better than the American army made it. (Applause).

The health record of the army you are too familiar with for me to take your time to discuss, but I think we have every reason to be proud of the Health Officers' Association and the public health work done in this State.

In my own county we had forty-six cases of typhoid and two deaths in 1918. I have had 46 cases of typhoid fever in my own town more than once in a year, and I remember on one occasion that a single doctor doing a country practice had 38 cases at one time.

The American army did more than did the citizen population toward protecting itself, and those for whom it was responsible, against typhoid fever, and you can go down the line of all infectious diseases that are preventable, and I do not think that the Sanitary Corps or the Medical Corps, or anything that had to do with public health in the army has any reason to be ashamed. (Applause).

The President: The next number on our program is an address by Mrs. Vaughn, Director of the Bureau of Infant Hygiene of the State Board of Health.

Mrs. Kate Brew Vaughn: *Mr. President, Ladies and Gentlemen:* I deeply appreciate the North Carolina Health Officers' Association allowing me the privilege of attending this meeting and am particularly grateful for being allowed to present the subject which, to me, is of so much importance. I have listened with much interest to the excellent papers of your members, and the reports of the county representatives, and while applauding the many excellent forms of work which have engaged your attention during the year, I have been duly impressed that the saving of grown folks in North Carolina has been of the most significance.

We have heard of the fight against tuberculosis, typhoid and diphtheria, to say nothing of the heroic struggle against influenza. I grant you that the saving of a man desperately ill with typhoid fever, or a child of 9 years in imminent danger with diphtheria, is a feather in your cap and most satisfactory to view in retrospect. I have listened in hope of hearing some one champion the cause of the infant, but the mother and her child have been mentioned only three times during the whole session. Dr. Carlton of Winston-Salem and Dr. Smith of Wilson have told of installing nurses, part of whose time shall be devoted to infant hygiene and care of the mother. Dr. Register of Northampton, has told of the nurse installed in his county coöperating with the Bureau of Infant Hygiene of the State Board of Health, and so I am most grateful to Dr. Cooper, who has made room on his already full program to allow me to tell you the plans of the State Board of Health as regards the reduction of infant and maternal mortality.

When England and France had been engaged in war one year, they were impressed with the fact that in order to protect their population in the face of the thousands of young men dying on the fields of France

in mortal combat, it would be necessary to protect the lives of the babies in the home. They began on a big scale what in times of peace had given them little concern, making surveys to find their needs, and applying the best methods at hand to protect the infant. The United States, ever ready to learn whatever might make our country stronger, began to apply these methods to our States. Last year, with the whole country looking towards the blood-stained fields of France, the children at home might easily have suffered had not our President instituted ways and means of attracting the attention of all people to the child. "Children's Year," conducted by the Children's Bureau, Department of Labor, found in the Council of National Defense a willing machinery for familiarizing people with the child's needs. All over the country women were weighing and measuring babies, but the time was limited and those working too untrained to be able to do more than attract attention to the necessity for really intelligent care to supplement the mother love which for many years was considered the all important ingredient.

North Carolina, as you have heard from many sources on this floor today, has a wonderful State Board of Health, and I feel that I can say this without appearing to brag, as I am such a late addition that I do not count. Its Secretary, Dr. Rankin, does not allow anyone to get ahead of him in procuring for his State the things which will add to the efficiency of the Board of Health. When he saw that all over the country women were thinking of children from a standpoint other than the old one, he picked me to be the director of this new bureau—I do not know why he should, but possibly because he knew I have five well grown babies of my own, and because I had specialized for ten years in nutrition. I came of the old school, when club women spent more time discussing literature than the things which should have vitally interested them and which shaped the lives of those dependent upon them. I had consequently, in rearing these five children, made every mistake a mother could, and my babies had lived in spite of me rather than because of me. Doctors were not prone in those days to talk very much to patrons concerning their children, lest they be misunderstood, and when my youngest son, a baby of four years, became afflicted with incipient tuberculosis, and my good old family physician was honest enough to tell me that I did not have very much common sense, I woke up to the fact that I had spent much time hemstitching ruffles instead of learning to properly prepare his food. I put in a good deal of time thereafter in studying foods, and later made it a means of livelihood. I think, then, Dr. Rankin selected me for the faults with which I was familiar and with which I could sympathize.

After being engaged, I was sent sightseeing to Kansas, New York, New England, and after several months I came back to Raleigh, my mind in a whirl, for the infant hygiene units I had visited were applied to the Harlem negroes, the immigrant Irish, Italians, Jews, etc., in the East, and the thrifty pioneer stock in the west, and the problem here is distinctly a North Carolina problem, with its 90 per cent American stock and its American habits and traditions.

The North Carolina State Board of Health, through its Vital Statistics Bureau, shows 74,795 births (of course you know North Carolina has more births per its 1,000 population than any other State in the Union), and 34,914 deaths in 1917, which is an average year. On a close analysis of these deaths I found that 11,749 of these deaths occurred in children under five years, and that 557 of them were women who died from accidents of pregnancy; 2,046 babies died during the first month of congenital diseases or because they were too weak or too diseased or too poorly nourished to live, and 2,626 died during the first two years of life of diarrheal diseases. In the Bureau of Infant Hygiene, gentlemen, we are considering two problems—(1) The intelligent care of the mother; (2) Intelligent care of the child, educating women in the hygiene of pregnancy and giving them all the information regarding this condition and assistance for a normal pregnancy possible. The midwife, apparently an economic necessity in North Carolina, is largely to blame for the 3,153 stillbirths yearly, and for many of the 557 deaths from accidents of pregnancy. With supervision of the midwife and education of the expectant mother as to the care she should have, we hope to create a demand for a different class of midwives in North Carolina, as well as save many of the unnecessary deaths. I understand that a newborn baby has an economic value of $90 to the State, and anything which would decrease the number of stillborn babies would be an asset to the State. If these creatures happened to be pigs instead of human beings, and pigs were worth $90 each, do you think the Agricultural Department would be sitting around doing nothing about it? Up to this time we have heard no hue and cry over these 3,153 stillborn babies here; 2,046 too poorly nourished to live longer than one month, 2,626 babies under two years of age died last year of diarrheal diseases, caused by improper food or by germs carried into the intestinal tract by food. If it were humanly possible to save these lives, the outlook would be appalling—if these deaths were due to tuberculosis or typhoid fever, I dare say few of us would be willing to linger in North Carolina, but gentlemen, you know and I know that at least two-thirds of these lives might be saved with the same system and attention to them which has yearly reduced the number of deaths from

these two causes. What has been done with tuberculosis? They have been saving for four years two hundred lives yearly over the previous record. How was this done? By education and by taking cases in the incipient stages and curing them. How have they checked typhoid? By education and such preventive measures as were found necessary.

When in New York I asked to be sent to that part of the city in which diarrhea was most prevalent. I was told that they had no such section. I asked "How have you eliminated it?" and was told, "We have made it almost criminal for any mother or doctor to allow a baby to die of diarrhea," while we in North Carolina, with our American population and the healthiest climate to be found, allow 2,626 babies to die yearly of diarrhea, and I am going to ask those of you who have heretofore not thought of it seriously as a vibrant health problem to take it home with you and give to it some thoughtful attention. Will it not pay us to teach mothers the causes of these deaths and make them responsible for the lives of their offspring?

When I was a little girl, my father, who had a number of fine mares, permitted us to use them until within a few months of time for foaling, but for two months at least they were turned out on pasture, given the best care and allowed the run of the field, later on repaying for the care by bringing forth very good colts.

The stillbirths, the large number of deaths from congenital diseases, the number of maternal deaths will show conclusively that many women are not so well treated. If we could educate husbands to understand what a strain for women the maternal experience is, if we could educate the woman herself as to the responsibility and the best ways of meeting it, if we could get the coöperation of the doctor in this education, it would make a marked difference in these appalling figures. Doctors somehow like better to operate for appendicitis than to take obstetrical cases; they find more satisfaction in setting a broken arm than in the intricacies of obstetrical practice, but the death rate of North Carolina must be reduced by the doctors facing this as a problem with an individual responsibility.

I want to tell you what we are anxious to do. Since we cannot personally visit all of the expectant mothers of the State, we would like to write to each one not only one letter of cheer and advice, but nine, in which we would anticipate her ailments and prepare her for combating them, or at least understanding them, and pointing out the danger signs of pregnancy with a warning to seek advice of a physician and have frequent urine analysis. We are getting the names of women in need of this advice in various ways. They see the Bureau mentioned in the Bulletin and ask for literature; nurses, club women, ministers,

teachers and a few doctors send us names. We began in January last to secure these names and today we are corresponding with 853 expectants. I find women, especially the country women, are awfully lonesome—husbands get newspapers, a farm paper, and get in them all they need. The woman in the majority of cases takes no newspaper, has no correspondents, and during the months of expectancy is peculiarly lonely, as she infrequently leaves home. Now the State Board of Health finds out her condition and one of the members writes her a letter each month, chatting about patterns for clothes, telling her what a wonderful being she is and what a great opportunity is hers, and what a responsibility she has accepted, all the while patting her on the back, figuratively speaking; advising her to seek a physician's guidance, and to have the urine examined; suggesting proper food, rest, bathing, etc. Knowing full well that all cannot afford a physician she is advised regarding midwives, and so important is this advice that it is put on a lurid pink paper to attract attention—the pink sheet contains such information regarding midwives that if the prospective mother has, by that time, any confidence in our advice, and is able to afford it, she seeks a doctor instead of midwife. The ninth letter goes a few days before the expected confinement and contains full instructions for caring for the new born. Later on we write her for information about the baby—asking its weight, condition, etc., and from her reply, we can tell how she is feeding it, etc. We keep close to her, advising as to feeding regularly, or giving proper modifications if bottle fed, with such specific advice as she may ask for.

You have no idea the questions they ask—often too intimate for a timid woman to ask a physician—one woman wrote a few days ago "A month seems too long to wait for your letters." Gentlemen, I am not going to tell these women with whom I come in contact anything you would not tell them if you had the time to sit and talk with them. You have not the time for this, and if you had, many of you would hesitate to stop and tell these intimate things to some ordinary woman who is not even good looking (applause), even a woman who ordinarily is good looking so often becomes hysterical at this time that you are not anxious to spend much time talking with her.

Aside from this we are trying to educate them to avoid diarrhea by teaching cleanliness, swatting flies, screening homes, building of sanitary closets, properly boiling and keeping milk, and later properly preparing the supplementary food.

We have two nurses in the State doing this work in counties; have two nurses of organizations coöperating with us, and hope before many

months to have eight others bending every effort to reduce sickness and death among mothers and babies by educating parents.

Governor Bickett has given me the week of May 11th as Baby Welfare Week. Mrs. McKimmon has given her Home Demonstration agents, Dr. Brooks has promised his teachers, and Mr. Hudson, his farm demonstration agents—all to give some thought and effort to attract the attention of the public to the number of deaths and remedial agents for lessening them. By their coöperation we confidently hope to reduce the deaths which have been increasing in the State, largely because you gentlemen have been so busy with tuberculosis, typhoid, measles, etc., that you have not been able to see how appalling the prospect in this field is, nor how promising it is of recovery when we have enough coöperation in looking after them, all of which I feel confident of securing when you become assured of my sincerity.

Prolonged applause.

Dr. McCracken, President: We shall be glad to hear from Dr. Way, the President of our State Board of Health.

Maj. J. Howell Way, Waynesville: If a man has been away from his practice, has been away from the familiar call of "Doctor" for nearly two years, it is a very welcome sound, and I think there is nothing that pleases one of my profession quite so well as to be called "Doctor." So I am glad to be called, even though I have little to say.

I think the first thing to do always is to pay debts, as quickly as we can, so I am going to let you pay your debt to Mrs. Vaughn for her very lucid, timely and splendid address, by moving a rising vote of thanks to this lady. (This was passed unanimously).

It is very pleasing to believe that the spirits of those who lived and worked and toiled among us, though their bodies go hence, their spirits come back and watch over us and are interested in what we are doing. As the President of your State Board of Health, as I sat here today and saw this splendid body of public health workers, when I heard our gifted Rankin, when I listened just now to our equally splendid Laughinghouse, when the last and best, Mrs. Vaughn's most charming lecture, came, my mind went back to the days when the late lamented Thomas F. Wood, who will always be known to the State Medical Society as the father of the State Board of Health—my mind went back tonight to that gifted and lamented man, and I thought, "He is with us tonight, his spirit is looking in on us, and he is delighted at seeing how the little acorn he planted has grown into such a great, splendid and powerful tree as the public health work of North Carolina is today."

We have lived wonderfully fast in the last few years, and I am one of those who believe, ladies and gentlemen, that we have lived during this time to noble purpose. No period in our existence has been fraught with so much of physical, intellectual and moral uplift. On every line, ladies and gentlemen, the great world war has been a fine investment for the American people, and worth every drop of blood, every dollar of treasure it has cost. Some months since, as chief of a Service in one of our large base hospitals, I became interested in finding out how much more the average man weighed when he went out of the hospital demobilized than he did when he entered the army. You know, we have records of everything in the army. If there was anything that an army officer heard, first, last, and all the time, it was that "blank, blank, blank paper work." But it had a purpose, and never in the history of the world was an army recorded and written up and about, and the details and the doings, physically, of every man kept, as they were during this war. I had many hundreds of men checked up, and I found the net gain of the average man going out of the Service was approximately twelve per cent in pounds more than he weighed when he came into the service. That was fine from the physical standpoint, and I believe, ladies and gentlemen, that from the standpoint of intellectual uplift, from the standpoint of moral and spiritual uplift, the gain was greater, that it could not be calculated in pounds or measured by figures. The four million of Americans, young, vigorous and active, hearts buoyant with life and with expectant years before them—those men will carry with them the spirit of the American army, which is, ladies and gentlemen, the finest spirit of real manliness, of self-sacrifice, of striving to secure human happiness, of living and working and striving for lofty ideals. The spirit of the American army, not excepting that of the Christian, is the finest spirit on earth today. These men go back into civil life with an appreciation of what it is to be clean, clean physically and morally. They go back strengthened in their bodies, inspired and exalted in their conceptions and ideals. They go back holding their shoulders up, they go back with ideas of sanitation. They return with a knowledge of how to live, of how to be regular in their habits and correct in their modes of life, that will be an inspiration to them during the rest of their lives and a Godsend to the men and women with whom they associate.

But I did not get up here to make a speech. I got up here to show my politeness in responding to a call. I thank you, ladies and gentlemen.

We had this morning from our President a splendid resumé of what North Carolina is doing for her unfortunates. I move, sir, that it is

the sense of the North Carolina Health Officers' Association that the address of the President be given to the press of the State for publication in their Sunday papers, affording all the people of North Carolina an excellent epitome of what our North Carolina government is doing and striving to do for the care and relief of the unfortunates in this State.

Now, the public health problem used to be a doctor's problem. But it has ceased to be that. It used to be a man's proposition. That is funny. How on earth could we ever imagine that any proposition was just a man's proposition, as if anything that concerns the vitality and life of men and women and babies is just a man's proposition? Funny, is it not, that, instead of thinking of it as a man's proposition, we have not always thought of it as a woman's proposition? Thank God that we have now reached the point where we have ceased to have men's propositions. These are now humanity's propositions, and the women, God bless them, are taking their full share of responsibility and are marching side by side with us in their solving.

Mr. President, I move you, sir, the public printing of our President's address.

This motion was seconded and unanimously carried.

Dr. Cooper, Secretary: Dr. Thompson, we would like to hear from you now.

Dr. Cyrus Thompson, Jacksonville: Really, Mr. President, I was standing out there and did not get the substance of Dr. Cooper's remark. I do not know what you want, unless it is simply to look at me and compare me with this picture which Dr. McBrayer, of his own motion, put on these badges. I paid for the original picture, but I did not pay for those. You have the pictures, and you are expected to pay for them. If any of you are dissatisfied with what you have to pay, give me back the picture and I will bear the cost.

I could not be responsible for it, to be right serious, unless I were a very vain man. Two ladies told me tonight that I could not be responsible for it on the ground of vanity, for no man could be vain of his looks if he looked like me. You had better keep the picture and carry it home with you, for sometime I shall be dead, and then you will want to know how I looked.

(Addressing the Secretary): Dr. Cooper, are you satisfied now? (No answer.)

It is always a very difficult proposition to be with a man or a woman that cannot hear well. But the deafest of all people are those who do not want to hear. You remember the Mother Goose rhymes—and no

man is well educated if he does not learn those rhymes in his childhood days and carry them with him through life. I recall one of them now, and this is it:

"Old woman, old woman, shall we go a-shearing?"
"Speak a little louder, sir, I'm very thick of hearing"
"Old woman, old woman, I love you very dearly."
"Thank you, kind sir, I hear you very clearly."

I take it that Dr. Cooper would have heard my question if he had been in the humor for hearing. He simply wanted to have me talk some more. But I don't feel like talking. I want to listen to the proceedings.

I am pleased to see so many here so early in the session, and I am delighted to see so many ladies. We are going to have a real good meeting, and I have a real short address that I am going to read to you tomorrow. It has one redeeming quality, it is not long. Sometimes I speak right long. One time I made a Fourth of July speech in the town of Fayetteville that paralyzed people for two and a quarter hours. When I stopped they clapped their hands for joy that I had finished.

I heard just a little of what Dr. Way said about public health work. There is only one great question before the medical men in North Carolina, and that is the public health work.

Now, I am going to quit, and not say another word, and it does not make a particle of difference whether Dr. Cooper is satisfied or not.

Dr. McCracken, the president, called for remarks from Dr. Thos. E. Anderson, of Statesville, and Dr. Fletcher R. Harris, of Henderson, members of the State Board of Health.

Dr. Anderson did not respond.

Dr. Harris: Mr. President, I thank you for the invitation, but I have really nothing to say. I have enjoyed the sessions, and am sorry I could not get here earlier in the day. I was very glad indeed to hear from Mrs. Vaughn, and I am going home and see if I cannot help more with that great question. It is really paralyzing to know of such things. I am confident that if the people of North Carolina can be informed they will take more interest.

The following report was presented by the committee on resolutions:

We, your committee on resolutions, beg leave to submit the following:

Resolved: First, that the Secretary prepare a blank form to be used in making the reports for the various counties, and with sufficient space at the bottom thereof under the head of "Remarks," for recording of any special work not included in the general form. Further, that these reports be submitted to the Secretary and published in the transactions, but not read in the open meeting of the association.

Resolved: Second, that the North Carolina Health Officers' Association vote thanks to the entertainment committee, the Secretary, Mr. Tufts, and others who have made this meeting instructive and enjoyable.

Committee: J. S. Mitchener, M.D.
Wm. M. Jones, M.D.
A. Cheatham, M.D.

Dr. Washburn moved that the report be approved, accepted and placed on the minutes, and this motion was seconded and passed.

The report of the Auditing Committee was made by Dr. D. E. Sevier as follows:

The committee has gone over the books of the Treasurer carefully, and find that they are correct in every detail.

On motion, the report was accepted and adopted.

ELECTION OF OFFICERS

Dr. Cooper: Mr. President, before any nominations are made, I want to say just a few words. I have done all the heavy work of arranging for the annual meetings, for the past four years, such as getting together an interesting and instructive program, and working hard to bring out a full attendance, all of which has been cheerfully done. But my duties with the State Board of Health are increasing to enormous proportions, and therefore I must decline to serve longer as secretary. You have many abler men who can serve you better and so in all sincerity I ask you to elect a new secretary.

I have never missed a meeting since the association was organized at Charlotte nine years ago. I love the organization and I have been delighted to see it grow each year in power and usefulness. I am proud to say that we have never had any politics except to better health conditions in North Carolina. We have seen the number of deaths from typhoid fever reduced to five hundred in 1918. Last year the State Board of Health alone, with the assistance of the county health officers, was able to get more than eleven thousand defective school children treated. When the association was chartered medical inspection itself was scarcely known or ever had been heard of in the State. So I feel proud of the record we have made and I feel sure that all constructive health work will be greatly increased and expanded from year to year. But—folks, please elect a new secretary.

Dr. McPhaul nominated Dr. E. F. Long, of Davidson County, as President. This nomination was seconded, and Dr. Long was unanimously elected. Dr. McCracken then asked Dr. McPhaul, Dr. Sevier, and Dr. Jones to conduct the newly elected President to the chair.

Dr. Washburn nominated for vice-president Dr. Carl V. Reynolds, health officer of Asheville. This nomination was seconded and carried unanimously.

Dr. Reynolds: I am going to make the best speech that has been made this evening. I will simply say, I thank you.

Dr. Long: We have before us the election of a secretary.

Dr. D. E. Sevier, Asheville: It has been said, and well said, on this floor today that the Health Officers' Association of North Carolina is the strongest association of its kind in the South. It is because we have had a secretary who is largely responsible for the success of this organization. I admit that it is a hardship, and I do not see why, since he is connected with the State Board of Health, they cannot assist him with the work. Therefore, gentlemen, I offer for your consideration, as secretary of this organization, the name of Dr. G. M. Cooper.

Dr. Arch Cheatham, of Durham, seconded this nomination, and Dr. Cooper was elected by a unanimous rising vote:

Dr. Cooper: Mr. President: The only speech of acceptance I can make is to say that as I am one of the most appreciative fellows in the world, I thoroughly appreciate the honor of being reëlected for the fifth term as secretary, and though I know you have again made a big mistake, I will do my best one more time.

There being no further business to come before it, the Health Officers' Association adjourned.

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